The Journal of the
American Medical Association

VOL. XXIII. CHICAGO, JULY 28, 1894. No. 4.

ORIGINAL ARTICLES

THE STRUCTURE OF BLOOD AND ITS RELATION TO PRACTICAL MEDICINE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. H. WYTHE, M.D., LL.D.

PROFESSOR OF HISTOLOGY AND MICROSCOPY, COOPER MEDICAL COLLEGE, SAN FRANCISCO.

Physicians have always realized the importance of the study of blood. The ancient Hebrews regarded it as the life of the body, or the meeting point of body and soul. The humoral pathology, first elaborated by Hippocrates, and which was the prevailing doctrine of all medical theorists for hundreds of years, gave great importance to the evacuation of the blood by the lancet, the scarificator, and the cupping glasses. So universal was this practice that it attracted the censure and witticism of the literary world, culminating in the immortal "Doctor Sangrado" of Le Sage. Many who are still living can remember the careful directions given respecting blood-letting—how it should be drawn by a full stream into a warm deep basin, so that it may be set aside to coagulate gradually. Then the appearance of the clot, and of the buffy coat, had much to do with the judgment of the physician. A soft and uniform clot indicates deficiency of fibrin, as in typhoid fever, etc. A uniformly great contraction shows a predominance of fibrin over red corpuscles, as in chlorosis. Blood highly buffed and cupped occurs in acute rheumatism and other severe inflammations. These, and similiar aphorisms, were based upon observation of the general structure of the blood as seen by the naked eye. May it not be that the modern practitioner has gone too far in the opposite extreme?

With the invention of the microscope, the study of the blood has been greatly promoted. No part of the animal organism has been more frequently examined, and yet its true structure is but partially known. It may be said of the blood more than of any other histologic structure that there is no end to investigation and research. It has been examined under a a variety of physiologic and pathologic circumstances and exposed to different physical and chemic conditions. It has been boiled and roasted and fried, and cooked in all sorts of menstrua, in the hope of torturing nature to reveal her secrets, and it has also been treated kindly and delicately with the same hope. Under such circumstances, the opinions of observers have naturally been different, and sometimes contradictory. Many of these discrepancies were due to the imperfection of early microscopes, and the almost universal habit of using too low magnifying powers. The optical improvements of the past few years have doubled our ability to penetrate the arcana of nature. The numerical aperture, or standard measure of excellence, of the best objectives of eight or ten years ago was but .75 or .80 per cent., compared with 1.33, or 1.50 of our present lenses, or as a circle of three-fourths of an inch diameter compares with one of an inch and a half. With such improved power of research, nothing but lack of industry or care can prevent more accurate knowledge of minute structures. The delicacy of adjustment in our best objectives has also rendered more perfect mechanical appliances and optical accessories a real necessity. In addition to the widest possible numerical aperture in the objectives, the microscope of the future will have a wide-angled achromatic condenser with coarse and fine adjustments equal to those required for the objective itself, and with an iris-diaphragm for regulating the illuminating cone of light. No really critical work can be done without such provision. The images given with high powers and such appliances are so different from those of low powers in inferior instruments as hardly to be recognized as the same structures. It is certainly quite reckless to give testimony affecting human life based on observations made with inferior means.

The brilliant discoveries in bacteriology during the last few years seem to have eclipsed all purely histologic investigation, yet within a recent period microscopic examination of blood is assuming the importance which it deserves, and although it remains to a large extent an unexplored territory enough is known to justify its careful study by the practical physician as a guide both to diagnosis and treatment. To the young graduate, desirous of distinction, no more inviting field is open in all the realm of medical science. To tabulate the microscopic analyses of blood in different ages and diseases, with a comparison of clinical symptoms, will require years of labor, but will be a priceless boon to the medical profession.

When we speak or read of blood, it is natural to think of it as the red stream which courses through the arteries and veins, yet in strict propriety the fluid plasma, continuous with the lymph which bathes every tissue and organ of the body, is the real blood, conveying life to every cell and fiber, while the white and red corpuscles are incidental accompaniments, conveyed by the fluid blood for special purposes. Much has yet to be learned respecting the chemical and vital properties of the plasma, yet there can be little doubt that much of the immunity against zymotic diseases is due to these properties. Dr. Prudden has shown that serum and non-inflammatory exudations in the living human being possess a marked germicidal power, and this has been confirmed by several European observers.

This serum is not only a solvent for bacteria, but for other structures. In August, 1891, I published in the *Pacific Medical Journal* some observations of

the blood in a case of lymphadenoma, in which the red corpuscles were seen to dissolve in their own plasma, but after a month's treatment with iodid of iron and manganese, the corpuscles resisted dissolution. Sterling tells us in his "Histology" that the red corpuscles of a rabbit or guinea-pig are completely dissolved in a few minutes in the blood serum of a dog. The corpuscles of a frog or pigeon dissolve more slowly and their nuclei remain. The dog's serum loses this power after being heated to 50 or 60 degrees for half an hour.

In pathologic conditions, as relapsing fever, anthrax, tuberculosis, etc., the serum loses its germicide power, and bacilli may be found with the microscope, with or without staining.

Changes in the specific gravity may be found by using a single drop of blood in a mixture of chloroform and benzole. When it is just suspended in the fluid, the specific gravity of the latter is taken in the usual way and is the same as that of the blood. The specific gravity of blood varies with the proportion of hemoglobin in the red blood discs, so that this simple mode may be used in anemia, and so forth, instead of resorting to costly apparatus.

Changes in the acidity or alkalescence of the blood occur in various diseases, and the time of coagulation also varies. The solution of ptomaines resulting from decomposing bacteria is doubtless irritant or poisonous to the tissues, but the leucomaines which are formed by decomposing detritus, of the blood corpuscles or other albuminoid substances, unless eliminated by excretion, will lead to auto-infection, or an alteration of structure or function by a blood poison originating in the body itself.

Dr. Prudden well expresses the significance of the germicide power of serum in the living human being by saying that it consists chiefly in recalling "the attention of therapeutic adventurers from germicidal warfare to what appears to be a natural defense of the organism against bacterial invaders, namely, a healthy condition of the blood."

"Proud of our already long list of well-defined bacterial species; consciously masters of the morphology of many forms of bacterial disease; well on the way to an intelligent and efficient prophylaxis, and glorying in the possession of ptomaines so definite as to enter at our will into the composition of tangible and even formulatable metallic salts, it is a little humiliating, though doubtless salutary, to find ourselves face to face with a series of phenomena, which seem to lie at the very basis of the knowledge of the acute infectious diseases, and yet be able to say only that they are the result of the vital forces, vitality, life. It is fortunate that we have these words and phrases, however, which conceal so much and express so little, since, under their cover, we may take breath for the assault on another of Nature's tantalizing and well-fortified secrets."—*Microscopical Bulletin*, February, 1890.

The white corpuscles are found in lymph as well as in red blood. They are merely embryonic or detached particles of living matter of different sizes. With the best homogeneous immersion objectives, they appear as spherical or ovoid, but are often quite irregular in shape, and made up of a convoluted or sponge-like reticulum. They may have one or more nuclei which consists of a denser or finer network than the rest of the corpuscle. They have amœboid motions, by which they change their shape and place from time to time. The conventional pictures repeated from one text-book to another give no adequate conception of them.

The white corpuscles are normally increased during digestion, and are in excess of a normal proportion to the red cells in a number of pathologic conditions, as typhoid fever, erysipelas, anemia, etc. In leukemia, the abnormal proportion is long continued and very marked, in some cases showing one white to ten or twenty red cells, or even greater proportion. Ehrlich has shown that the leucocytes or white cells are variously affected by certain aniline stains. In leukemia only he finds some which are distinctly stained with eosin, and calls them eosinophile cells. It was thought at one time that Ehrlich's method of staining would indicate whether the leukemia depended on disease of the lymph-glands, the spleen, or the medulla of the bones, but recent investigations have thrown doubt upon such discrimination, and Jaksch has found eosinophile cells in tuberculosis, in pneumonia and in anemia.

The red corpuscles normally are flat roundish discs with thick edges, so soft and flexible that they readily adapt themselves to the curves and angles of the blood vessels. They are of different sizes, not only in different animals but in the same animal. A few microscopists believe that by careful measurement of a large number of discs and comparing the average sizes, a discrimination may be made between the blood of one kind of animal and another. Some have made themselves ridiculous by testifying that they could distinguish the blood of a man from that of a woman. The consensus of opinion among prominent writers is that the size of the red corpuscles is insufficient for the purposes of medical jurisprudence. A view of the red corpuscles in the field of a modern microscope, with a power of 1000 diameters or more will show such a variety of size, above and below the average, as to render an accurate judgment doubtful.

As to the presence of a nucleus, or of an investing membrane in human red blood corpuscles, writers differ greatly, doubtless because of the imperfection of the instruments or reagents employed.

The protrusion or retraction of knobs, projections, or bead-like processes from the corpuscle has been often described, and termed "angular," "rosette" "stellate," etc. Brucke, Stricker and others consider the red corpuscle as really double, consisting of a stroma or matrix which is permeated by a softer or more fluid substance containing the hemoglobin, or coloring matter. Treatment with astringent solutions, as tannin, boracic acid, etc., causes these constituents to separate.

Klein, Heitzman and Flemming describe a fibrillar network in the nuclei of reptile blood, and others speak of fine radial filaments proceeding from the nucleus to the surface.

Elsberg, in Heitzman's "Microscopical Morphology," describes the examination of fresh human blood in a 40 or 50 per cent. solution of bichromate of potash, with a one-twelfth of an inch immersion objective, and a magnifying power of 1,000 diameters. He states that in a short time, indentations occur in the red corpuscle, producing irregular and stellate forms, which may persist or lead to separation by constriction of minute portions, or the corpuscle may become rounded again. After about half an hour protrusions of knobs take place, which may be again retracted or a pedunculated knob may be de-

tached. Sometimes several corpuscles unite, forming chains or compound bodies. Others appear with one or more vacuoles in their substance. In many corpuscles, a distinct reticulation is seen, with thickened points at the intersection of the filaments which, without careful focusing, might be mistaken for granules. Some of the corpuscles become pale, and mere rings or "ghosts," detached portions of which accumulate as detritus.

The reading of Elsberg's descriptions several years ago impressed me with the thought that such a variety of forms and activities indicated a corresponding variety in the structure and functions of the red corpuscles, and I instituted a series of experiments with analogous but even more complex results than those of Elsberg. The very best instruments were employed, as Zeiss's largest microscope stand, and the modern Van Heurck stand made by Watson. For objectives, I had Powell & Lealand's one-tenth apochromatic of 1.50 N A, the Bausch & Lomb H I one-eighth of 1.40 N A, a Gundlach's 1.20 H I, and several others. I used also an Abbe condenser or a Powell & Lealand's apochromatic condenser of 1.40 N A, together with the compensating eye-pieces of the latter firm. The magnifying powers varied from 900 to 3,000 diameters.

Various solutions were used in the examinations, as 1 per cent. solution of osmic acid, Flemming's solution, and 20 to 50 per cent. solution of bichromate of potash. The latter fluid gave most satisfaction. According to Rollett and Elsberg, bichromate of potash does not alter or seriously impair the living matter, but acts as a preserving medium, and enables us to trace normal development or natural degeneration. I found, however, that the alterations of the red corpuscles occurred sooner in strong than in weak solutions, so that some astringent action seemed due to the menstruum.

A small drop of blood was placed upon the cover-glass and quickly put on a drop of bichromate solution upon the slide. Blood from different persons and of different ages was examined, and although differences in amount and in time of alteration were perceptible, nearly all showed great irregularity in the shape of the red corpuscles.

Many of the corpuscles appeared as concentric rings in a flat disc around a central nucleus. Some showed protuberances around the edge, as if a semi-fluid substance had exuded, or had been squeezed out of the corpuscle. These protrusions differed both in size and number. By the use of the sub-stage condenser and oblique illumination, occasional glimpses of fibers radiating between the rings were obtained. The shape and size of the discs greatly varied. Many were round, but others were oval, square, triangular, finger-like, and sometimes branched, but nearly all exhibited traces of ring structure. Some were merely flat plaques or discs, notched at the edge; others were more globular. Many had irregular knobbed protrusions both on the edge and on the flat surface, as described by Elsberg. Many of these protrusions became detached, and some of them would remain at rest while others showed amœboid changes of shape, and would rotate or move across the field of view in different directions. Portions of protruded semi-fluid substance would remain for some time attached to the edge of a disc, then with a vibratory or oscillatory motion would detach themselves and form independent masses, some stationary and other motile. Some were attached to the disc by a fiber or thread, and often such a thread would bind several masses together. In one instance two masses pulled apart so as to form quite a lengthy fiber. In others the fiber formed a tail with serpentine motion or would entirely separate from the mass. Careful focusing showed some of these fibers to be really chains of small granules, many of which appeared as scattered detritus. So similar were these granules, isolated or in chains, to micrococci, that they would have been deemed such if they had not been seen in the act of stripping themselves from the edges of the viscid red corpuscles.

The result of my observations convinced me that the phenomena described were the result of a natural degeneration of the red corpuscles, hastened perhaps by the action of the bichromate solution. The variety in the appearances may be due to essential differences in the corpuscles themselves; differences which are both morphological and physiological. Considering the various offices which the blood performs in the animal economy, embryonic, nutritive, metabolic and excretive, we may reasonably expect the structure of the corpuscles to differ, and the effects of chemical and physical agencies upon them to be far from uniform. The more embryonic forms may not exhibit the fully formed structure, while those engaged in carrying away effete matter may be ready to disintegrate. Thus we may account for the variety in the appearance of the corpuscles and for the ready decomposition of some, while the structural integrity of others persists longer.

Under the name of poikilocytosis, some have described the irregular forms of blood discs occurring in debilitating diseases, especially in pernicious anemia. A large number of minute cells has given rise to the term microcythemia, and abnormally large cells to macrocythemia. Such terms are really unnecessary, and are but additions to a list of technicalities already too large. The varying appearances of decomposing cells, especially when the normal process is exaggerated by morbidly depressing influences can not be described by such terms.

One of the effects of the bichromate solution on the red blood corpuscle is to harden and contract the outer surface so as to wrinkle it in such a manner as to simulate the plasmodium malariæ. This has occurred so many times as to throw doubt upon some preparations and observations. I have not been able to examine many specimens of malarial blood, but some European slides, stained after Ehrlich's method, and marked plasmodia can scarcely be distinguished from the wrinkling of the cell in the bichromate solution. The amœboid and flagellate forms of the organism will afford proof of its presence, but an irregular vacuity in the cell is no proof.

As an example of the relation which such examinations of blood as have been described bear to practical medicine, reference may be made to an examination made by the writer some years ago, of the blood corpuscles in eighteen cases of beri-beri, which had been transferred from a Brazilian corvette to the Marine Hospital in San Francisco. A full account, with microscopic illustrations, may be found in the Annual Reports of the Supervising Surgeon General at Washington. Specimens of the blood from each patient were sent to me, and examination showed that the red corpuscles were in various stages of disintegration. The ring structure of the broken cells and the resemblance of the detritus to micro-

cocci was evident. The clinical history of each case fully confirmed the microscopic examination, although the patients had not been seen and the slides of blood drops were merely numbered from one to eighteen. Acting upon the suggestions of the microscope, iron and quinin were given in large doses, with a generous diet. Under this treatment, the blood corpuscles of the patients speedily recovered their normal appearance, and in a short time all the seamen returned to duty. The surgeon in charge of the hospital (Heber Smith, M.D.), in his report to Washington, says: "It is possible that a microscopic examination of the blood of all the men on board the corvette before she sailed from Brazil, would have revealed just those members of her crew who were to suffer from the disease."

FEVER, AND THE RELATIONS OF MICRO-ORGANISMS TO THE DISEASE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY WASHINGTON AYER, M.D.

SAN FRANCISCO, CAL.

In the discussion of this question I shall assume the negative position. During the past ten years the medical mind has expended much of its force in the investigation of bacteriology, and no one in our country has more enriched the literature of this department of science than Dr. George Sternberg, and he is entitled to great consideration for the industry with which he has pursued his labors; yet I consider his efforts to be without practical results.

The subject of organisms is as familiar as household words and is filling the human mind with wonder, fear and amazement, and it is proper that the medical profession should pause for a season, take its reckoning and learn the true position it is occupying upon this question. We know much that was unknown to the founders of the healing art, and yet know but little of all that relates to the art and science of medicine; and the student at the close of his life-work will exclaim with Newton: "Alas! I have been but a child picking up pebbles upon the shore of the great ocean of truth!"

Like a dark shadow that creeps over a landscape, obscuring its beauty, transient causes stealthily invade the body until health vanishes into the gloom of disease with its true etiology unknown.

Fever is an important factor in nearly every form of disease, whether idiopathic or traumatic, and its various attendant phenomena can not be explained upon the germ theory, that microörganisms are the only true *materies morbi*. The ebbing of the tides of the ocean is influenced by planetary movements and changes, and so is lunacy, while the electric phenomena of the clouds and the seismic convulsions of the earth produce nervous prostration, fear and consequent disease.

Intelligence and learning are not evolved from any organisms, nor from light and heat, but spring into force and energy by individual application, and the maxim, *mens sana in corpore sano*, finds support in the world's philosophy and the sayings of men.

The different departments of learning belong to the different conditions of mind. We can not all think and reason alike, yet the healthy brain of the cadaver does not enable us to point out the specific differences in the quality and quantity of the minds of men.

Results of these conditions are the sequences of mental toil, as the harvest is gathered in by the strong arms of the yeoman and the charm of plenty fills the household.

So in the abstract does mental toil beget thoughts which enrich the world of learning and become our choicest companions, but the thinking and reasoning must be in the right direction to become profitable. Speculations mislead and error follows, and men of one idea cease to be useful.

"Nature is true to herself." Nature does not deal in fiction but in the great problems of reality, and the earnest medical student is willing to yield his life-work to add one more truth to human learning, still evolving and educing good, ever striving to relieve the sufferings of his fellow men.

While the literature upon the subject of fever is so great and so comprehensive as to appear nearly exhaustive, there yet lies much before us to be learned, and the physician who shall give to the world its positive cause and prevention will build to himself an enduring monument in the hearts and affections of the people, and they will be led upon the borders of the Utopia of human happiness by such a discovery.

Fever, in its generic acceptance, is an exalted or increased temperature of the blood coursing through the body, feeding the surface with accumulated heat as the result of friction and decomposition, and is attended with increased action of the heart, pain in the head and back, weariness in the limbs, a feeling of general exhaustion and great thirst.

By the increased heat of the blood the various functions of the viscera are changed, nutrition is interrupted and gradual decay follows, until the function of assimilation is restored to its normal condition by the slow processes of change in the multiple phenomena of life. Why the exaggerated mutations of temperature and restlessness are greater in one than in another person, in the same type of fever, is a subject which awakens a controversy in the minds of all diligent students of medicine. Here we may inquire what is the fuel, and where is the fire kindled that causes the increased temperature of the body, and why are not similar remedies always employed to extinguish this heat?

Were the theory of germs correct would they not continue to flourish, and why could not some germicide be employed to destroy the microörganisms at once, and place the patient on the highway to convalescence, and not allow him to waste away upon the bed of sickness for a period of three or six weeks?

When convalescence begins, does this change denote that the germs have ceased to proliferate, or that they have become alarmed at the fusillade of remedies that have been discharged into their ranks, and made their escape out of the mouth into the surrounding air to seek some new fields of operation and bring new subjects to the chamber of disease?

As all fevers have their periods of exacerbation, of pyrexia and anorexia, which may be determined at least twenty-four hours before their occurrence, what part of this program do the germs take? What are they doing during this interval? Are they waiting for some new neöplasm to spring up to feed upon?

Typhoid fever upon the Pacific coast is of a much milder type than is found upon the Atlantic seaboard, and, according to the Pasteur theory, the same class of typhoid bacillus is the *casus belli* here as there, when the body is invaded by the fever, and must be

subject to typical climatic influences; and accordingly a humid atmosphere must be the soil where the most virulent forms of these microörganisms are developed and propagated; and the mephitic gases of the sewers can have very little influence over the economy of the physical functions of the various organs of the body of man in producing disease, and this undoubtedly is true. The carburetted hydrogen gas of sewers is one-fifth lighter than common air, and when disengaged flies away, while the sulphuretted hydrogen gas is one-fifth heavier than common air and does not rise high enough to seriously incommode any one sufficiently to affect the standard of health.

Fancy can scarcely picture a more bewildering subject in histology and causation of disease than is witnessed in the disintegration of tissue and general exhaustion of the forces of life, nor better portray the magic effects of the microörganisms of the germ theory than is presented in the various phenomena of intermittent fever.

Were, then, specific bacilli endowed with intelligence and formed into communities of labor unions, with hours assigned to accomplish their work and for rest, they could not possibly be more systematic in deceiving and destroying the comfort of those they have prostrated by their presence. But, unfortunately, they are not discovered until disease makes their presence known, and we are led to conclude they are the spontaneous developments of unknown causes, and should be classed as the sequelæ of unknown forces, rather than the prime cause of disease.

The evidence that these specific microörganisms are alone the *materies morbi* is wanting, and their presence is not *prima facie* evidence of the fact beyond controversy.

The true interpretation given to fever depends upon the thorough knowledge of the functions and changes in the structure of the organs principally affected. One coming from a malarial district, suffering from chills and fever, to the casual observer would be considered as having either remittent or intermittent fever, while upon a close inquiry the fever might be traced to an ovarian cyst or an abscess in the cul-de-sac of Douglas, or to some localized disturbance of the liver, spleen or kidney, and the aid of the microscope would not be required to make a differential diagnosis, nor would the presence of specific germs be required to determine these different lesions involved.

In the two former cases the only germicides required for the student to become familiar with, would be the surgeon's instruments and the technique treatment.

Exalted temperature and increased cardiac action are important factors in nearly all functional disturbances as well as organic disease, and should be carefully studied in the clinics.

Is there a prescient, instinctive reasoning force in the protoplasm which marshals the armies of microbes into distinct and expressive forms of battle array, and assigns to each class or species a specific office to perform, so that one shall destroy the functions of one set of organs, and another overcome the possibilities of health in some other organ, and thus establish a variety of diseases? Is this the teaching of the germ theory? Is the microbe the siren that first pleases, then stirs the soul to fears and moves to resistance the sorrowful tear? Is this the modern ogre that must be banished into eternal exile before human life can become secure from the ravages of disease? The task is too great to be undertaken; every sunbeam is full of resistless germs, and every drop of water full of insect life busy as the coral insects building reefs beneath the waves of the ocean, and the dawning light of every new day will scatter the germs over the earth. They have a perpetual existence, and we must not forget that disease and death are the inevitable sequences of human existence.

The announcement that sterilized milk and sterilized water are the only fluids suitable for domestic use fills the timid with daily fear, and they naturally ask why the air is not sterilized so that the "nasty things" can not get into the milk and bring sickness to their homes.

Hoc opus, and the labor which the advocates of the germ theory must perform to make it of practical importance. As we study the conditions of the atmosphere, as indicated by the barometer and thermometer, we shall find ample reasons why exposure should cause disease, and greater cleanliness should be observed to preserve the purity of the air. While the nursery is reeking with the aroma of neglected duties, the secretions become vitiated and the restlessness of the infant repeats the story of responsibility, and the cause of its sickness.

The art of medicine is the highest expression of medical thought, which has advanced so far that at the close of the nineteenth century we are living in the midst of conditions that were but the shadowy dreams of the early founders of the healing art. These things must not be forgotten.

I have a conscious conviction of the necessity of being conservative in the discussion of this question, that admonishes me that practical knowledge alone offers the greatest encouragement to progressive medicine, while microscopic visions and day dreams lead into the walks of speculation and error.

There are habits of thought that are as earnest in their necessities for the development and health of the mind, as the habits of the body are necessary to be observed for physical comfort and health. The growth of the former is derived from application, and the growth and nutrition of the latter is the result of the assimilation of the elements of concrete foods adapted to the support of physical life.

In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION an article appeared from the pen of Charles Smart, M.D., Surgeon U. S. A., upon drinking water, in which he states the following, viz:

"Not long ago I saw it asserted that a cholera germ had no more chance of passing along the current of the Potomac undetected by the bacteriologist, than a mad dog had of careering along Pennsylvania Avenue at midday without being detected." . . . . .

"When the germs of typhoid fever or of cholera are present in a water, they generally enter the water along with sewage, for it is known that these pathogenic organisms are cast out of the sick person by way of the intestinal canal."

The question that is here first presented is, How do these organisms first enter the *prima via?* Certainly not from the sewage, for according to this writer's views, which I believe to be correct, the sewage is the secondary place where the germs are deposited, and in the reports from Marseilles and Toulon during the cholera epidemic in these cities in 1884, in the immediate vicinity of the sewage dumps cholera was scarcely known.

From the simultaneous appearance of cholera in different parts of an infected city it is at least rational to conclude that there is a morbific choleraic wave which falls upon the people like a shadow from a passing cloud, and neither sewers nor sewage can be made responsible for the rapid spread of the disease.

When a relapse follows a slow convalescence, no one can properly say another brood of hungry bacilli have left the sewers and entered the body to bring back the disease and prolong the suffering. Common intelligence points to some imprudence as the cause of the relapse; yet our analysts and germologists cry, Germs! Germs!! Germs!!! and revel in fictitious exclamations, though truth to the contrary be stronger, and stranger than their fictions, they have entered the groove, made their discoveries in histology, and like Bellamy have been looking backward and failed to make a practical application of their learning so as to arrest disease. The death rate remains unchanged *pari passu*, as population increases.

To-day the educated medical thought is leading its research into the occult domains of biology, with the view of raising practical medicine to the high standard of an exact science.

At the present time all investigations have only proved the existence of microörganisms, and have failed to demonstrate that they are primarily the cause of the various morbid conditions of the body.

While light and heat are essential to the healthful growth of vegetation, some species of the algæ flourish only in bogs and along the margin of pools of stagnant water. The proper understanding of the correlation of existence—life and growth of vegetation with the life of animated creation—man and his surroundings, is of great importance while considering the influences which change and develop the extraneous growths on the hardy plants and cause disease—decay and death to the tree—and pain and death to man.

DISCUSSION.

DR. W. N. MILLER—While I am a believer to a certain extent in microörganisms, I think in a great many cases it is very uncertain. Yet, at the same time, all that is necessary for a person in diagnosing a case is to tell the patient, "you are a subject of microörganisms." Then you are sure to hit his case, no matter what it is. It is very important for a person to diagnose a case satisfactorily to the patient, and when this diagnosis is given you are sure not to have to go back upon it, and you are always sure in case death ensues that you have been right.

LEPROSY IN SAN FRANCISCO.

Read in the Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5–8, 1894.

BY DOUGLASS W. MONTGOMERY, M.D.

PROFESSOR OF DISEASES OF THE SKIN, MEDICAL DEPARTMENT OF THE UNIVERSITY OF CALIFORNIA; CONSULTING PHYSICIAN FOR DISEASES OF THE SKIN AND FOR PATHOLOGY, GERMAN HOSPITAL.

SAN FRANCISCO.

In all ages and in all countries the mass of mankind has believed in the contagiousness of leprosy, and even now, when exposed to the sharpened criticism of scientific inquiry, contagion is still the only basis on which we can explain the facts. It is not known how the contagium is carried or how inoculated. We do not know what manifestation it makes at the seat of inoculation, or whether it makes any capable of being clinically appreciated. It is not understood why one person may become infected from what seems a short exposure, while another may dwell most intimately and for long stretches of time with lepers, and never contract the disease. We are not in a position to explain these nor a host of other facts, but we do know that when we find a leper, we immediately inquire for other lepers with whom he has been in contact and we find them. The fact of lepers being aggregated in localities is so notorious, and so within the ken of every medical man or even layman that it does not need the citation of examples.

If the disease be contagious and in no other way can we understand its propagation, and if it have a tendency to become fixed in a locality because of the continued residence of lepers, or as it might be put, if a locality may become saturated with the germs of this disease, then the question before the citizens of San Francisco and of the United States becomes a grave one, for, instead of passively receiving lepers we may assume the active rôle of a distributing point, and give out abundantly what we have received so thoughtlessly. All the factors going to the formation of a leper focus seem to be present in the San Francisco Chinatown. The Chinese here all come from the Province of Kwang Tung, where leprosy is abundantly endemic; most of the lepers here are Chinamen; most of the Chinamen in San Francisco live in the Chinese quarter, and under unhygienic, overcrowded, filthy conditions. Under such circumstances, from what we know of germ diseases, everything seems favorable to room after room in Chinatown becoming impregnated with lepra bacilli from the occasional sojourn of leprous Chinese. On the other hand, I must say that although I have seen quite a number of Chinese lepers here, I have never run across one who was born in this country. This may be due to the circumstance that very few of them are native here, as a Chinaman seldom brings his wife with him. They are all married prior to emigrating, and they leave their wives at home. But the failure to find Chinese lepers of American birth might be brought forward as an argument by those who consider the fear of San Francisco becoming a leper center trivial.[1] They might say that leprosy introduced by the Chinese into California would probably take a course similar to the same disease brought to Minnesota, Wisconsin and Iowa by the Norwegian immigrants, not one of whose descendants, according to both Hansen and

[1] From the length of time some of the Chinese lepers have been in this country before showing any signs of the affection, one might infer the possibility of having acquired it here. It is not wished to put it any stronger than a possibility, because in leprosy the time that elapses between an inoculation and the first manifestations of the disease seem to vary within wide limits. The following is a list of some Chinese lepers, with the date of their arrival in this country, and the length of time after that before they noticed the first symptoms of their disease. The figures in either case are just as they were given to me either directly from the patient, or through the intermediary of an interpreter, and make no pretensions to being scientifically accurate:

Lee Yen, 33 years of age, laundryman and cigarmaker, came to America in 1873, and went back to China for a short visit about eleven years afterwards. A leprous patch appeared on the right buttock three years ago.

Chan Muy, female, 31 years of age, came to America in 1868, and a small tubercle appeared on the nose in 1888, twenty years afterwards.

Dang Hung Kuen, male, 50 years of age, came to America in 1881, and about five years afterwards noticed half dollar sized patches on the right side of his forehead.

Ngo Wong, male, 25 years of age, ragpicker, came to America in 1878, and three years afterwards noticed the left ear became swollen.

Chang Kim, male, 25 years of age, farm laborer, came to America in 1884, and five and a half years afterwards tubercles appeared on the anterior surfaces of the knees.

Chung Kan Foke, male, 31 years of age, miner in a silver mine, came to America in 1876, and lumps appeared on the face sixteen years afterwards.

Ma Ying, male, 25 years of age, farm laborer, came to America in 1881, his right hand withered and a white patch appeared on the left side of the face seven years ago.

Gronwald, are lepers.[2] But one of these observers, Armauer Hansen, thinks the failure of the disease to propagate itself in the case of the Norwegians is due to the improved social conditions in this country. The isolation of separate beds, clean toilet articles, distinct food receptacles, plenty of water, is enough to prevent the spread of the disease. And this brings me to a point which ought to be accentuated; the difference in social conservatism between the Aryans and the Mongolians as we see them in this city.

The European, of whatever nation, comes here to form a home, and the more prosperous he is, the more comfortable the home becomes. The Chinaman, no matter how prosperous he may be, lives under mean conditions and saves his money that he may realize his ideal of living in splendor on returning to China. And besides this he has a conservatism of which the restless dissatisfied Anglo-Saxon can only form an imperfect conception. Look at their colossal conservatism in regard to food. The Italian will give up his polenta, and the Irishman is only too glad to add good juicy beef to his potato diet, but a walk down Dupont Street shows not only shop after shop filled exclusively with imported Chinese food stuffs, but fresh meat stores filled so predominantly with pork that it is difficult to find beef, and apparently never a piece of mutton, in a land where both beef and mutton are cheap.

The Chinese in California live practically the same way they do in China and, as far as social conditions are concerned, leprosy would have an equal chance of propagating itself among them here as there.

We might look upon the presence of leprosy in Chinatown with indifference, thinking of it as simply confined to an alien population, but the possibility of their afflictions being transmitted to us should make us alive to the importance of warding off the danger. Some Americans are necessarily employed in Chinatown, and many Chinese are domestics in American houses. In fact we are intermingled in a thousand ways and unavoidably so. And moreover on a former occasion I have shown that an American, who was never out of the United States acquired leprosy on this coast, probably in a Chinese camp in Nevada, so that there is no doubt of the possibility of Americans becoming lepers in this country.[3]

San Francisco is a young city, only a little over fifty years old, and leprosy can not yet be said to be endemic here, for it has not had the time to become so. It is therefore not a leper city in the full sense of the term, and we should see to it that this misfortune does not happen. There will always be some lepers coming in from surrounding countries, but the disease ought not to be allowed to gain a foothold.

As an example of a city where leprosy has become firmly seated, Constantinople is instructive. Von Duhring says[4] that leprosy in that city is only endemic among the Spanish Jews, and that all other cases he has seen came in from the neighboring towns. These Jews, driven out of Spain in 1492 by Ferdinand and Isabella, settled in a quarter of Constantinople set apart for them, where they yet dwell. They still, after the lapse of four hundred years, speak Spanish, wear a peculiar garb, live poorly, and are very crowded and filthy, in all of which respects they form a striking and instructive parallel to the Chinese in our city.

A paper drawing attention to the contagiousness of leprosy, especially when even the laity believe it to be far more virulently contagious than it really is, would seem to be superfluous, but allow me to give you an example of civic carelessness in this very particular:

Until lately our lazaretto was also our smallpox hospital, and the lepers had the free run of the wards, which were liable at any time to be occupied by smallpox patients. The bed occupied by a variola patient might have been used as a lounging place by a leper a few minutes before. The variola patient was forced into the hospital, and he might be a very

[2] Die Ætiologie der Lepra von G. Armauer Hansen. Rudolf Virchow's Festschrift, Bd. III., Page 63.

Leprosy in Minnesota, U. S. A., by Chr. Gronwald, M.D. The London Lancet, March 26, 1892.

[3] On Feb. 29, 1892, there died at the San Francisco pesthouse a leper with the following history:

B., aged 48; an American; was born of American parents in Massachusetts, and never was out of the United States excepting a few hours in passing from Buffalo to Detroit over the Canada Southern Railway. About twenty years ago he acquired a sore on the penis after connection with a white woman in Nevada; no history of secondary symptoms could be elicited. He did not deny that previous to this he might have had frequent connection both with Chinese and Indians, but he said that if so, it was a long time before, and had no connection with the sore. Shortly after the acquisition of the sore, and while still in Nevada, he had charge of a gang of Chinamen on the railroad. There were several Chinese prostitutes in the camp with whom he had frequent connection. He did not remember that any of the Chinese showed any of the symptoms of leprosy, but admitted that they might have had the disease and escaped his notice, as he did not know anything about leprosy at that time. About seven years ago he noticed areas of brown discoloration on the body and limbs, which were diagnosed and treated as syphilis by the doctors whom he consulted. His malady was first correctly interpreted by Dr. Geo. L. Fitch, of San Francisco, about five years ago, and about six months later he entered the San Francisco pest-house, where he remained for two years. He again entered on Feb. 17, 1890, and remained till his death.

The patient was above medium height, with a well developed bony skeleton. He was bald on the vertex, the remaining hair was brown, and rather dry looking as if not well brushed, but otherwise healthy. The scalp was in good condition. He had neither eyebrows, eyelashes, nor moustache, and the beard was very sparse. The disease was situated especially in the face, hands and forearms, and feet and legs. There were large nodules on the site of the eyebrows, and from there the disease shaded off upwards into the clear scalp above. The eyelids moved a little stiffly from the infiltration, but there was no lagophthalmos, as is so frequently the case in leprosy. The skin of the nose, and of the whole of the lower part of the face was very much thickened, especially the lower lip, which stood out stiff and useless. The patient originally had a light complexion, but when I saw him the skin of the face, hands, and lower part of the legs, and of the feet was a dark coppery color. The skin upon the lesions of the face had the silky soft appearance so often seen in patients suffering from tubercular leprosy. On the skin of the arms and hands, and of the legs and feet there were exacerbations, the seat of previously existing pemphigus blebs, which appeared from time to time. The last joint of the ring finger of the left hand was enlarged and stiff; the movements of the hands were not nearly so deft as formerly, but there was no paralysis, and no wasting of the muscles. He had lost appreciation of touch, and on being handled felt as if a substance were between the fingers of the person and his skin. His extremities were analgesic, and he had recently burnt his fingers in picking up something hot without experiencing any pain. His appreciation of the sensations of heat and cold was not tested. There was a discoloration, such as he said constituted the first symptoms of his malady, on the inside of the left leg. It was an irregular, fairly well circumscribed, brown patch about the size of a silver dollar, joined by a narrow isthmus to a similar patch. At the edge of this discoloration there was a lepra nodule, well raised above the level of the skin, and very dark in color. It might have been mistaken for a melanotic sarcoma. This nodule was cut out, and lepra bacilli were found in scrapings from the cut surface. Sections prepared for the microscope showed that its black color was owing to an extraordinary amount of lepra pigment.

The eye-balls were clear and moved normally, and the sight was good. The skin covering the auricles was normal, a remarkable circumstance considering their liability to be affected, and the advanced stage of the disease. The hearing was good. Both nares were almost completely blocked so that he could scarcely breathe through them. The epithelium of the dorsum of the tongue was a glittering white, and the surface was marked off by deep furrows running in all directions, but principally longitudinally and transversely. This condition of the tongue is usually found associated with syphilis, and it was the only symptom I could find at all indicative of that disease. He complained he could not eat fish, because of the difficulty in detecting the bones with his tongue, so that the sense of touch was evidently obtunded. The voice was husky and the breathing was difficult; in speaking he frequently had to pause to take breath, and at times the hospital attendants were afraid he would suffocate to death. He said he had not had any sexual desire since the commencement of the disease seven years before, and he blamed, as this class of people frequently do, the mercurial treatment for its extinguishment. The skin of the penis and scrotum was absolutely normal, but there was a small solid swelling in the left cord, and the left epididymis was slightly enlarged but of normal consistency. His mind was clear and his answers terse and to the point.—Reported in the *Pacific Medical Journal*, April, 1892.

[4] Lepra und die Frage ihrer Kontagiositaet nach Beobachtungen in Konstantinopel von Dr. med. E. von Duhring. Monatschrif führ Praktische Dermatologie, 15. Maerz, 1893.

decent fellow—as a matter of fact a physician enjoying a good practice died there a few years ago—and it is not fair play to put a man in a bed on which a leper had been taking his noonday nap, thereby exposing him, because of a temporary disease, to the possibility of contracting a malady that would make him an outcast from society for life. This matter is mentioned rather by way of example than as a complaint, as the management has been changed lately and the discipline is better, but even now we ought to be on the outlook for a lapse of city morals in this direction, for, in case of a smallpox epidemic it is to be feared the main building would again be used as a smallpox hospital.

PRIMARY TUBERCULOSIS OF THE PERITONEUM, CURED BY CELIOTOMY. FOUR CASES.

Read in the Section of Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5–8, 1894.

BY W. F. McNUTT, M.D.

SAN FRANCISCO, CAL.

These four cases of primary tubercular peritonitis, are reported on account of the doubt and speculation that still exist as to the etiology of this disease. Most writers maintain that tubercular peritonitis is necessarily secondary. There can scarcely be a question about these cases being primary; the fact that there were no indications of the presence of tuberculosis, or any other disease, together with the fact that the cases all recovered after operation, and show no evidence of disease since, is almost proof positive that in these cases the disease was primary and confined to the peritoneum. The question might arise as to those inflammatory products being the result of Koch's bacilli. In each of these four cases on opening the abdomen, the peritoneum, both visceral and mural layer, was studded with thousands of miliary tubercular bodies, that is shiny, hard little granules on the surface of the membrane. Unfortunately in only one of these cases were these little bodies examined histologically and inoculation experiments were not instituted. One case illustrated the variety which gives a fibrinous exudation, plastic adhesions with scarcely any serum and greatly thickened membranes; one case the exudation was sero-fibrinous or gelatinous and non-plastic, not adhesive; in the other two cases the exudation was serous.

Case 1.—Mrs. E., aged 58; I was called in consultation on April 7, 1891; her physician stated that for three months she had suffered with abdominal pain and much tenderness; coated tongue; anorexia; bowels irregular, most of the time constipated. For the last two weeks the bowels had only been partially evacuated with large enemas thrown up into the sigmoid, and all cathartic medicine had been rejected. The tympanitis intestinalis and borborygmus were characteristic of obstruction. We tried still larger injections by gravity and by long tubes without effect. A few days after I made a laparotomy finding the peritoneum greatly thickened and studded with miliary tubercles and the fibrinous exudations as described. Plastic adhesions had caused an obstruction of the colon at the juncture of the ascending and transverse. The adhesions were easily broken up, the bowels moved freely a few hours after, a drainage tube was kept in and the recovery was complete.

Case 2.—Age 8, tubercular family history; the family physician brought the child to my office December, 1892, on account of extreme distension of the abdomen. On examination it was evident that the enlargement was due to fluid, but from the shape of the abdomen and dense condition of its walls there was some doubt if the fluid was not contained in a cyst. I advised celiotomy and assisted in the operation. The peritoneum was found studded with tubercles and the fluid sero-fibrinous. Notwithstanding the tubercular family history (the mother being consumptive) the child is perfectly well at present.

Case 3.—Mrs. W., age 58, was sent to me August 18, 1893, by her physician being in doubt as to the cause of her abdominal distension, whether it was ascites or cystic. The protruding rounded condition of the abdomen resembled cystic disease rather than ascites. Having diagnosed the case as one of ascites, and finding no heart, or liver, or kidney disease, I concluded it was a disease of the peritoneum and made a celiotomy, finding the peritoneum thickened and studded with tubercles. The fluid, about eight quarts, was serous; no adhesions, no fibrinous exudation; drainage and complete recovery with excellent health since.

Case 4.—A boy aged 7; no tubercular history; had been complaining several weeks, when the abdomen was observed to be enlarging; a physician was called in and flaxseed poultices and other appropriate treatment instituted for peritonitis. After a week's treatment and the enlargement increasing, I was called August 29, 1893; finding the enlargement due to a fluid and the disease apparently confined to the peritoneum, I advised a celiotomy. On opening the peritoneum it was thickened and studded with miliary tubercles. A drainage tube was left in; the recovery was complete; the fluid was serous. This last case was the only one examined microscopically; the following is Prof. D. W. Montgomery's report:

"I have examined the small piece of tissue from the M. child, and it shows the structure of tubercle. There are a vast number of giant cells with their nuclei arranged around the periphery, and the center occupied by coagulation necrosis. I have stained repeatedly for the bacilli of tuberculosis but I have been unable to find any. This is not strange, however, as it is very often, I may say in the majority of cases impossible to demonstrate the bacillus of tubercle in the tissue. But as this case shows the presence of miliary tubercles when looked at with the naked eye, and also shows the same minute anatomic structure as tubercle, we must call such cases tuberculosis, till we get proof to the contrary."

DISCUSSION.

DR. MCNUTT, (at the conclusion of his paper).—These are the four cases. I simply want to report them. I do so because of the doubt that exists as to whether tubercular peritonitis is primary or secondary. In these cases there was no meningeal tuberculosis, and no tuberculosis of the lungs or of any other organ.

One point, however, I will note upon the diagnoses, and that is that these cases do not resemble ordinary cases of ascites. In ordinary ascites when the patient is put on his back the abdomen flattens, while the abdomen in tubercular peritonitis stands out. That is why it was doubtful in each of these cases whether it was cystic or not. When one cuts into the abdomen and sees the thickened condition of the peritoneum, and sees the exudation into the peritoneal wall, it is easy to understand why in tubercular peritonitis we expect to find the abdomen standing out as if the person was suffering from cystic disease. In each one of these cases there was an indication of cystic disease; there was no flattening of the abdomen as there would ordinarily be in ascites.

DR. J. T. CARPENTER, Pa.—I would like, Mr. Chairman, to ask the operator whether he made thorough drainage, and whether there was any medication of the peritoneal cavity?

DR. MCNUTT—I would say that the first two cases were treated with a carbolized solution; in the others, the fluid was simply evacuated and all drained.

THE CHAIRMAN—I would like to ask whether in any of the cases bacilli were found?

DR. MCNUTT—No; an examination revealed that it was a tubercular structure.

THE CHAIRMAN—I supposed that referred to the last case mentioned, only.

DR. MCNUTT—Yes; that was the only one that was examined microscopically.

LUNG GYMNASTICS IN THE TREATMENT OF CHRONIC DISEASE.

Read by title in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5–8, 1894.

BY L. P. WALBRIDGE, M.D.
DECATUR, ILL.

Oxygen is the sustaining principle of animal life and of all the ordinary phenomena of combustion. It is indispensable in respiration, and in general is the most universally active and efficient element.

Respiration is the most important function in the human economy. By this method life is sustained. When we consider the tremendous importance of the lungs it must become apparent that any neglect of these great central boilers of the body may result in disease.

Man does not live by bread alone. The food we eat would not nourish us if we did not breathe. The air we breathe burns up the food, and by so doing produces energy and vital force.

It is the air we breathe that supports combustion, and combustion maintains life by creating heat. But the ultimate source of the heat is contained in the potential energy taken into the body with the food we eat and the air we breathe absorbed during respiration. The food stuffs are used up in the body chiefly by a process of combustion. The kinetic energy is liberated only in the form of heat while the mechanical and electrical energies are developed from the potential energy taken into the body by the food we eat and the air we breathe.

Air is free to us all, but it were better if the over-civilized people of our age had to pay for it. Then they would value it. Oxygen is one of our principal nourishments. It is to the lungs what food is to the stomach.

The stomach and its relation to food stuffs have been described from time immemorial, also its relation to digestion. But no mention is made of the tremendous influence the lungs play in the ultimate appropriation of the food to our existence.

To learn to breathe properly is to learn the foundation of physical health. In the evolution of our earth there was a time when the higher order of animal life could not exist, because of the universal abundance of carbonic acid which fulfilled its purpose by filling the granaries of the earth with fuel for man's use. But at the coming of man there appeared another gas for his sustenance, and by that gas we live, move and have our being.

By lung gymnastics is meant the exercise of the lungs by deep and prolonged breathing, expanding and contracting the chest. By this means the lungs are strengthened, the body nourished, and the impure gases of the blood removed. To breathe properly we should take in a full long breath until the lungs seem full, taking care not to strain the lungs. Hold the breath while the lungs are filled, for a few seconds. Then gradually let it leave the lungs. If these practices are indulged in several times a day they will, in a short time become a habit, and under these exercises the respiratory movement will become less frequent, the capacity of the lungs increased, and the substance of the lungs strengthened.

Natural breathing in some people is a mere gasp. The air cells of the lungs are not properly filled and consequently the blood is not thoroughly oxygenated. The person becomes anemic, flat-chested with stooping shoulders, the lung tissue suffers and becomes an easy prey to disease.

In natural breathing the apices of the lungs are not as completely filled with air as they should be. This may be due to abdominal breathing in man, while intercostal breathing is more common in woman; hence the more frequent lung disease found in man.

To fill the upper part of the lungs one should stand or sit erect, take a deep full breath, and expand the chest upwards and outwards, holding the breath a few seconds, then gradually let it leave the lungs. By this method the apices of the lungs are thoroughly filled, the air pressure acting as a stimulus to the lung substance, strengthening the parts and giving them greater resisting force to disease.

Long breaths represent strength. Brute creation is almost universally found to possess strength in proportion to the length of the respiratory movements; *e. g.*, the hippopotamus who breathes once a minute, the elephant, lion and horse eight times, the tiger six, down to the rat who breathes two hundred and ten times a minute.

In slender developed people where there is slight development of the bust there is nothing that will develop the chest and strengthen the lungs as much as lung exercise. How many are there who know nothing of the exhilarating influence of a full long breath! People who are confined to the house and those accustomed to a sedentary life, who are shut up in small rooms probably never getting a good full breath of fresh air only as they go to and from their places of business, have stooped shoulders, the chest contracted, the head bent forward causing a pressure upon the abdominal organs, and to some extent checking venous circulation, rendering the blood sluggish, and the brain congested from mental strain. The mind has become tired and worried, the respirations lessened, the blood poisoned from impure air benumbing the center of respiration. By five minutes exercise with the lungs in the open air, by deep and prolonged breathing, the poisonous gases in the blood are changed, the headache and tired feeling disappear, and the blood is better oxygenated carrying new life to the tired muscles.

Without good blood one can not maintain good health, but with good blood, health and long life are sure to follow. It is then through the blood that we have our being, acting as a medium of exchange for the outer world and the tissues. Into it are poured those substances which have been subjected to the action of the digestive fluids, and into the lungs it receives oxygen. It thus receives new substances, both from the stomach and lungs. But in its passage through the tissues it gives up some of those new substances and receives in exchange certain waste products; *e. g.*, carbon dioxide and urea. It is then of the greatest importance that the blood contain those natural substances which supply the waste that is constantly going on in the body.

The object of respiration is to supply the oxygen necessary for the oxydation process that constantly goes on in the body, as well as to remove the carbon dioxid formed within the body. An increase in the number and depth of respirations causes an absolute increase in the amount of carbon dioxid given off, and an increased metabolism. Every respiration favors the passage of the venous blood and also of the lymph toward the heart.

Among the Greeks the harmonious development

of all the organs of the human body formed the foundation of education, not only of the youth alone, but of the nation at large, This sentiment pervaded their works on philosophy and is found embodied in all their laws. Lycurgus ordered the establishment of training schools, consisting of jumping, leaping and running. He said that by these exercises they acquired a temper like steel.

My opinion is that the greatest good derived from exercise is brought about by an increased respiration which burns up the food and tissues with greater rapidity, bringing about an increased appetite for food, replacing the waste product by new material, increasing nutrition and a more active metabolism.

The method of treating disease by exercise was practiced more among the ancients than with us. In the oldest literary records of the Hindoos and Chinese, mention is made of the successful method of treating deformities by exercise, and the successful method of treating spinal curvature by definite muscular movements simultaneously with deep and prolonged respiration.

Herodicus, a teacher of Hippocrates, was the first to lay down principles for rational treatment in chronic disease by exercise and breathing. He carried these methods so far that he compelled his patients to walk up steep places and suffer their bodies to be rubbed, and the more the disease weakened them the more he endeavored to overcome that weakness by strengthening the muscular power. He had the good fortune to lengthen the lives of many enfeebled patients, so that Plato reproached him with having acted very unjustly toward these unfortunate people in prolonging their lives.

Hippocrates extended on a scientific basis the principles laid down by his master, and his doctrines in preventing and curing disease by exercise were accepted by the most celebrated physicians of Greece and Rome.

Demosthenes overcame his natural bodily infirmities and his inarticulate and stammering pronunciation by exercise; *e.g.*, he would take long full breaths and run up steep places and declaim while the air was leaving his lungs. In this way he overcame his stammering by gaining control over his respiratory movements.

It was only in the period of her decadence that Rome substituted for these healthful exercises that were the foundation of her developing greatness, the more brutal and coarse athletic circus sports.

During the Middle Ages, medicine was relegated into the background, and the treatment of disease was left to those who believed disease to be of evil spirits, and the method used to drive away these evil spirits was by sorcery and witchcraft.

In the year 1680, Borelli published his work describing the ancient method of treating disease by exercise, and gave his methods and reasons by which chronic disease could be successfully treated by exercise. About the same time Bacon gave those learned theories to the world which have opened new pathways to the science of medicine. His genius embraced every branch of science. He thought the question respecting the prolongation of life worthy his attention and research. He recommended exercise in developing the body, and that running up steep places would strengthen the lungs. Life he considered as a lamp, that would burn out if not replaced by new fuel, and that exercise increased the desire for food, resulting in an increase of vital phenomena. The most powerful impetus, however, given to the revival of this lost art originated with a Swede, the creator of the modern movement cure, whose methods have spread through the greater part of the civilized world.

What cases are benefited by the treatment of lung exercise? In all constitutional troubles when the object of treatment is to simultaneously improve the quality of the blood and the tone of the heart and lungs. To stimulate the action of the glandular and venous currents the newly oxygenated blood going to all parts of the system feeds it with new life and energy.

In anemia where there exists a morbid condition of the blood, probably both in quality and quantity, increased respiration by lung exercise increases the lung capacity and oxidizing powers of the blood, creating a more active combustion in the body. The blood is constantly loaded with fresh oxygen going to the tissues, feeding them with new life, stimulating the lymphatics and venous currents to an increased activity, stimulating a more active nutrition, improving the quality of the blood, and increasing the weight generally.

In cases where there is a congenital morbid tendency, the aim of all treatment is to modify both qualitatively and quantitatively the process of nutrition. Lung exercise will keep the blood in an oxydizing condition, altering the morbid state by the process of combustion, and an increased desire for food supplying the waste by new material. The seeming uselessness of all medication in some of these cases has long been recognized. Some drugs, however, retain their place as tonics and reconstructives; *e. g.*, quinin, strychnin, iron and arsenic. These may be used in combination or separately in conjunction with other treatment.

Of all drugs that seem to me to be of the greatest value in cases of anemia where there is a condition of mal-nutrition, strychnin is the most useful. It stimulates the circulatory and glandular system, increases nutrition and puts on fat. It is most generally given in too small doses to be of much benefit. It should be given in doses of one thirtieth to one-tenth of a grain three or four times a day. I have given it in doses of one-tenth of a grain three times a day with marked benefit.

In delicate narrow-chested persons where there is a tendency to phthisis, as a prophylactic, lung exercise is of the greatest importance. The lungs are strengthened, the quality of the blood improved, and the vitality increased. Living in the mountains, or the inhalation of ozone, creasote or blowing the spirometer, all have the same object in view. In my opinion the inhalation of medicated substances, in the treatment of catarrh and phthisis, do good only through the increased respiratory movements rather than by the drug used.

In breathing, the breath should be drawn through the nose instead of through the mouth. Hypertrophic rhinitis is more common among mouth breathers than among those who respire through the nostrils. It seems that the mucous membrane lining the nasal cavity requires a certain amount of atmospheric pressure to keep the vessels contracted, and if this pressure is not sufficient the vessels become relaxed, the mucous membrane becomes turgid and congested, and the nasal cavities become occluded.

I will cite a case of mouth breathing and hypertrophic rhinitis:

Mr. E., who had been a sufferer from what he called asthma for more than a year was a mouth breather. He called it asthma because as he stated his nose became so full at times that he could hardly breathe through it at all. On inspection the nasal passage seemed entirely obstructed. After several applications of cocain, a 2 per cent. solution, there was considerable contraction of the mucous membrane, and the breathing became easier.

I enjoined on him the necessity of breathing through the nose, and requested him to return to me in two weeks, and told him if he was not better at that time I would try other means for his relief. At the appointed time he returned stating that he could breathe freer than for months. I told him to continue the lung exercise as I had directed him and to return again in two weeks. At his return his breathing had improved and in two months from his first visit he was well as far as the trouble the asthma gave him.

The only medicine this case had was, at the first visit, a few applications by spray of a 2 per cent. solution of cocain, to determine if the obstruction consisted in congestion or was due to some growth. The remainder of the treatment consisted of lung exercise breathing entirely through the nostrils. The exercises were indulged in four times a day lasting about five minutes each time.

I will cite one case of phthisis treated and cured by lung exercise and the use of strychnia.

Mr. S., 27 years old, a farmer; had been in poor health for more than a year. Had been confined to the house for two months. There existed the usual signs of phthisis; *e. g.*, anemia, cough, diarrhea, night sweats, loss of appetite and a sub-crepitant râle heard over the infra-clavicular region on the right side; chest flattened and shoulders stooping. I prescribed for him strychnin sulphate in one-thirtieth of a grain three times a day, with plenty of good food consisting of eggs, cream, butter and beef, with a cold sponge bath every morning followed by a good rub down.

I then directed him to use lung gymnastics, with long, deep and full breathing, expanding the chest upwards and outwards, breathing through the nose with mouth closed. I directed him to inhale while raising arms from side over head, holding the breath for a few seconds. Then gradually let the air leave the lungs and at the same time bring down the arms to side. Fill the lungs again, bring the arms in front to a horizontal position, then throw the arms backward as far as possible while retaining the air in the lungs.

He was requested to remain out doors during the day and take long walks, and to fill the lungs while walking, holding the breath for a few seconds and then gradually letting it escape from the lungs. These exercises were repeated several times a day.

At the end of three weeks the strychnin was increased to one-tenth of a grain three times a day. His appetite began to improve and the sub-crepitant râle cleared up, nutrition improved and the lung expansion increased. At the end of three months he was discharged cured.

My object in bringing this paper before this meeting is to impress upon the minds of the members of this society the importance of lung exercise in debilitated subjects. The lungs have been neglected to the expense of other organs.

Properly conducted lung exercise will aid digestion, increase the desire for food, improve nutrition, increase the weight, add to the vital force and lengthen life.

A STUDY OF SCARLET FEVER AT HIGH ALTITUDES.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. N. HALL, M.D., AND WM. P. MUNN, M.D.
DENVER, COL.

We wish to present briefly the data which we have at hand upon 285 cases of scarlet fever treated by us separately in Colorado during the years from 1885 to 1894. They were all seen at altitudes varying from 4,000 feet above sea level to 5,500 feet. It is to be regretted that many details which would have added much to the interest and value of the report are lacking in certain of the cases. One hundred of these cases occurred in adults, this unusual proportion being accounted for by the fact that many homeless adults were seen in hospital, while suffering from the disease, whereas children were doubtless more generally cared for at home.

Two hundred and forty-six of the cases were comparatively mild in nature, recovery ensuing without serious symptoms. In these no exact record was kept of the presence of albumen in the urine, but it was found in very many of them. The cervical glands were enlarged in about 20 per cent. of the cases, suppurating in about 2 per cent. Quite a number had serous or bloody discharge from the nose but not of a serious nature, apparently.

One case was complicated with spasmodic laryngitis, and two with nephritis, all recovering without serious developments. Several had otorrhea, one double, but the exact number is not at hand. Two had mild attacks of rheumatism, with complete recovery.

Of the thirty-nine severer cases, two adults died of uremia, one child of 5 years of convulsions on the second day, and a babe of 2 years on the fourth day of broncho-pneumonia. The other thirty-five cases presented membranous exudation in the throat, nine dying, making a total of thirteen deaths out of the entire 285, or 4.5 per cent. The nine deaths out of forty-three, mentioned as occurring from membranous exudation, give a percentage as compared with the total mortality of sixty-nine. The two uremic cases formed 15 per cent. of the total mortality, the other causes combined also making 15 per cent. (Fractions omitted.)

If we omit the cases complicated with membranous exudation, we have 250 cases with 4 deaths, a percentage of only 1.6. Counting only the membranous cases the percentage of mortality is 25.7 per cent.

Of the thirty-nine severe cases, nasal discharge existed in most of the fatal ones. As in diphtheria, its appearance was indicative of great danger. Abscess of the neck occurred in one case, and paralysis of the soft palate in one, both being of fatal character.

There were observed thirty-five cases in which practically scarlet fever and diphtheria were coincident, if we apply the latter term to those cases in which a membrane having the clinical characteristics of the membrane of diphtheria appears in the throat. There were thirteen instances in which diphtheria alone was contracted from the two diseases combined, two instances in which diphtheria alone was contracted from scarlet fever without membranous complication, and two instances in which scarlet fever was contracted from exposure to diphtheria alone.

These facts furnish very strong arguments in favor of the view that the membranous cases of scarlet fever are really what they appear to be clinically; that is, combinations of the two diseases in question. It should be mentioned further that most of the fatality was in the cases where the combination was seen, these cases assuming the dangerous character of diphtheria rather than the comparative mildness of scarlet fever.

As to the bacteriology of the disease in question, in the present series of cases no investigations were made, this being simply a clinical study. The only logical deduction to be drawn from the work of Klebs, Löffler, Prudden, Morse, Park, Baginsky, Heubner and

Jansen is, it appears to us, that at present diphtheria is a term which is used clinically to cover a number of diseases independent of each other to a certain extent bacteriologically, but of greater severity when the Klebs-Löffler bacillus is present, either alone or in combination, As no constant association of bacteria of any given type is found with the membranous cases of scarlet fever, we should certainly think it best at present to fall back upon a clinical diagnosis, and speak of scarlet fever with membranous exudate as complicated with diphtheria and not as an independent variety of scarlet fever.

In the treatment of the disease, there can be no doubt of the propriety of keeping the patient confined strictly to bed, until desquamation has been practically completed, nor of the advisability of milk diet. Liquor ammoniæ acetatis in large dosage has seemed beneficial. Calomel has been used freely for the bowels, and most of the patients have received the biniodid of mercury in doses of from one-thirtieth to one-tenth of a grain every two to six hours.

The beneficial effects of whisky, given freely where indicated by great prostration, and particularly in cases with throat complications, have been too clear to admit of doubt. We should certainly class it among the most powerful weapons for combating the depressing effects of the poison of the disease.

Before the general use of the peroxid of hydrogen, potassium chlorate and iron were used chiefly for the throat symptoms, but the former drug is, we think, much superior. There can be no longer any doubt of the propriety of attempting to destroy the bacteria of the disease upon the mucous membrane of the throat, and especially as it appears that in this way we are most efficiently promoting the avoidance of the exudation seen in the severer class of cases. Care should be exercised that in the liberation of gas from the use of the peroxid the middle ear is not harmed by its passage through the Eustachian tube, and especially as it might possibly carry the germs of disease into previously exempt territory.

For the discharge from the nose a 1 per cent. solution of carbolic acid has been used with satisfaction. Suppuration of the deep tissues of the neck has been relieved by incision as soon as distinctly made out.

We believe that the use of vaselin as an inunction after scaling has begun does not meet all the indications of the disease so far as the skin is concerned. By beginning the use of a 2 or 3 per cent. solution of carbolized vaselin at the first appearance of the rash, there can be no doubt that the burning and itching of the first stages of the disease are very greatly relieved, and it is rather for this effect that we should recommend its use early in scarlet fever than because of its antiseptic nature. It should be continued throughout the desquamation, as is commonly done by many practitioners.

The uremia, high temperature and other symptoms seen in connection with the severer cases, have been met by such measures as are indicated by their presence in other diseases with which they may be associated.

In conclusion, we may say that so far as appears from the cases considered, there seems to be no reason for thinking that this disease is especially modified by altitude, as it has seemed to us much like the same disease as seen in other localities.

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LESIONS OF THE SENSORY FIBERS OF THE INTERNAL CAPSULE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY H. G. BRAINERD, M.D.
LOS ANGELES, CAL.

Many years ago I observed that in certain cases of hemiplegia of central origin, there was a peculiar burning, neuralgic pain in the paralyzed limbs, arising some weeks or months after the apoplexy and continuing with more or less severity until death relieved the sufferer. In regard to this distressing symptom I could learn little from text-books concerning its cause or treatment. Recently having had a number of such cases occurring within a few months, I haxe tried to find some rational explanation of the symptom. To show the data from which I draw certain conclusions, I will briefly relate the history of five cases which suffered from post-hemiplegic pain of a burning, neuralgic character:

Case 1.—M. T., age 61. While walking on the street in the evening of Sept. 28, 1890, was suddenly seized with a peculiar sensation, and some loss of strength in his right arm and leg; felt dizzy and faint but was able to walk several blocks to his hotel; was not unconscious at any time, and never wholly lost the use of right arm and leg; face not affected and no aphasia, and in two weeks had made marked improvement so that he could walk without assistance; but the paresthesiæ and numbness have made but slight improvement. His condition in June, 1892, was as follows: General health fair; walks without limping, but says right leg is not so strong as left; the grip of the right hand as shown by the dynamometer is 42; left 78; decided loss of muscular sense in right hand, but can button his clothes with it if he can see the buttons. The muscles of the right shoulder and upper arm are not so large and firm as those of the left side. There is no reaction or degeneration nor has there been in either arm or leg. There is slight choreic movement of right arm and hand, but no rigidity or contraction, although he says they often feel as if there were. From these symptoms we diagnosed a lesion, probably hemorrhage, involving the posterior limb of the internal capsule, posterior to the facial fibers. Four or five months after the seizure he began to have, in the right side of face, right upper and lower extremities, a burning pain, feeling, he says: "As though the skin were too tight and a mustard plaster were applied." Pain is now worst in shoulder, arm and hand. It is not increased by motion, massage, electricity, or any local application, nor is it improved by them. He has worn out the coal-tar derivatives and now frequently resorts to opium to get relief.

Case 2.—P. O. R., male, age 59. In September, 1891, had an attack of brief unconsciousness followed by left hemiparesis, which was most marked in the lower limb. His heart failed steadily. Complained of pain of a dull character in his head, and of a severe burning pain in the left lower limb, which began a few weeks after the seizure and continued until his death in June, 1892. I saw him first in January, 1892. He was then much emaciated, tongue foul, complained of constant pain in head, mind somewhat impaired; face not involved. Grip in right hand 57; left 23; could move left leg, but could not sustain his weight on it. Knee jerk exaggerated. Complained of numbness and burning pain in left leg, especially in the calf; on account of latter was obliged to use large amounts of opiates. As he had a heart murmur and had the history of several attacks of acute rheumatism, the diagnosis was made of embolism of right lenticulo striate artery and subsequent softening, involving posterior portion of internal capsule.

Case 3.—J. Gould, female, age 35. In June, 1891, became suddenly unconscious and remained so for several hours, which was followed by left hemiplegia. The facial impairment, which was slight at first, soon cleared up; but the paralysis of arm and leg continued until her death sixteen months later. The diagnosis of hemorrhage involving the posterior portion of right internal capsule was made. About a month after the apoplectic seizure the numbness in left arm and leg began to be replaced by pain of a burning and neuralgic character, and soon became so severe that life was

a burden. Galvanism, faradism, ether spray, massage, and numerous lotions and liniments were tried in vain to relieve it; but nothing was of any avail except opiates.

Case 4.—A. H., female, age 61. In August, 1892, was suddenly seized with numbness over whole right side, and half an hour later could not move hand or leg; but there was no aphasia. The paralysis began to improve in a couple of days and the improvement continued for about two months until she could walk without much limping, but the hand remained much weakened. At time of examination, nearly a year after seizure, grip of right hand 15; left 39 on dynamometer; much impairment of tactile sense in left hand, and there is some trophic disturbance as shown by swelling and by the appearance of the skin. Diagnosis: Hemorrhage affecting a portion of both sensory and motor fibers of the posterior limb of the internal capsule. A few weeks after seizure she began to have burning pain throughout right side, which has been very distressing ever since, no relief being obtained from any external applications which she has been able to use.

Case 5.—N. B., female, age 25. In August, 1890, became suddenly unconscious and remained so nearly two weeks. Following this had paralysis, numbness, and various paresthesiæ of left arm and leg. As she had suffered from several severe attacks of rheumatism, the diagnosis was made of embolism of right lenticulo striate artery with softening affecting internal capsule posterior to facial fibers. Two months after seizure she had recovered the use of leg so she could walk with a crutch; but her hand and arm never regained any usefulness. About the time she regained the use of the leg, she began to complain of burning pain in her arm and leg. This pain was excruciating in character. For the relief of it massage, galvanism, faradism, and all sorts of liniments were tried with no relief. For a time antipyrin, phenacetin, and other remedies of that group relieved her, but eventually nothing but large doses of morphin would keep her comfortable. Nov. 17, 1892, the patient died, and an autopsy showed the cerebral lesion to be a softening of the larger part of the right lenticular nucleus, about one-third of the anterior and external portion of the optic thalamus, and about three-fifths of the posterior limb of the internal capsule, beginning about one-fifth posterior to the knee and extending to the posterior fifth; involving all the motor fibers posterior to the face fibers, and nearly all of the "sensory crossway" of Charcot.

In all of these cases the symptoms would indicate a lesion of the internal capsule involving, more or less extensively, both the sensory and motor fibers, and in Case 5 such was proven to be the case by the autopsy.

In all the cases the pain was of the same sort, being described as a "burning pain" by each of them, though each of them added other disagreeable sensations to their descriptions of the pain. Its severity varied, but each one complained more of it than of the motor paralysis, and more than of any other symptom resulting from the apoplexy. In each of the cases no relief was obtained from local applications to the painful limbs, such as ether spray and anodyne liniments, but was obtained by the administration of drugs that produce their effect upon the cerebrum. The character of the pain was much like that in peripheral neuritis; but I think we may exclude peripheral neuritis, from the fact that manipulation of the painful limbs did not increase the pain; no tenderness along the line of the nerve trunks was elicited on pressure; the failure of external applications to give relief and the absence of the action of degeneration. Neuritis being excluded, it would seem that it must be due to the central lesion. Landois' "Physiology," page 912, in enumerating the numerous sensory and trophic disturbances which may arise from irritation of the fibers of the internal capsule, does not mention the pain which I have described, but I believe that it should be added to the list. My theory is that it is a "referred sensation" very similar to that felt in an amputated limb and is due, as in the latter case, to an irritation by the lesion of the sensory fibers passing from the periphery to the cortex, and hence is registered in the cortex of the brain as though it really had arisen at the periphery.

THE TREATMENT OF ERYSIPELAS.

Read in the Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. M. ANDERS, M.D., Ph.D.
PROFESSOR OF MEDICINE, MEDICO-CHIRURGICAL COLLEGE, PHILADELPHIA.

The subject of the treatment of erysipelas falls naturally into three subdivisions: 1, dietetic treatment; 2, constitutional; 3, local.

1. Dietetic.—The proper attention to the diet is of first importance. It must be generous and composed of highly nutritious articles. If the temperature be high, liquid forms of nourishment alone should be administered, giving them in small quantities at definite short intervals. Rectal alimentation should be resorted to if the stomach rejects a suitable dietary. Based on considerable practical experience, I have been convinced of the fact that liberal feeding is of greater service to the patient than any recognized form of medicinal treatment.

This method pursued from the onset of the attack will not only serve to render the course of the disease more favorable than if less energetically fed, but will also lessen the liability to the more frequent complications.

Erysipelas is, as shown elsewhere, a self-limited disease in uncomplicated cases, when occurring between 20 and 50 years of age. In such, the necessity for vigorous alimentation is not greater than in other acute infectious diseases having a comparatively short course. Relapses occur in 11 per cent. of the cases and lack of attention to the patient's diet during the primary attack does unquestionably increase the frequency of their occurrence.

When the disease occurs in persons over 50 years, when complications arise and when the vital processes have been lowered on account of previous chronic disease, such as chronic nephritis, chronic phthisis, organic disease of the heart, etc., the course is much more protracted. The fact that these chronic affections also increase the receptivity of the human organism to the specific germ of erysipelas, as well as the mortality rate, must be recollected. Now it is in the classes of cases just mentioned, or in those in which the duration is prolonged, that correct alimentation is of paramount advantage, fortifying the vital functions, thus abridging the course of the affection. And since death is directly ascribable to exhaustion, with few exceptions in these instances, the life of the patient is thus frequently savable. Again when nourishment is exhibited judiciously, stimulants are required but rarely.

There can be no question but that the typhoid state of the system met with in this and other acute infectious diseases is often attributable indirectly to hyponutrition. I fear we have come to rely too much upon the local and constitutional agents in the management of this disease, to the neglect of proper dietetic means—a more potent factor.

2. Constitutional.—When, however, despite appropriate diet the pulse becomes feeble, the first sound of the heart indistinct and the tongue dry, undoubted

indications for the use of stimulants are present and must be heeded. When needful they should be given with a comparatively free hand. Stimulation is most apt to be required in aged and enfeebled patients suffering from the disease. I frequently order to be taken, from 16 to 20 ounces of whisky or brandy daily in divided portions.

The promptness with which strychnin acts leads me to place it among stimulating agents in the first rank, in these cases. In marked gastric irritability champagne is to be preferred. Numerous antiseptic remedies have been recommended but they have not been, up to the present, available in doses large enough to be of decided advantage. In view of the fact, however, that the disease is known to be caused by the streptococcus of Fehleisen further trial of antiseptic agents should be made. I have been for a decade or over, exhibiting to erysipelas cases, bichlorid of mercury in moderate sized doses throughout the febrile stage, and have found some degree of amelioration of the symptoms as the result.

The tincture of the chlorid of iron first used extensively by English authorities, was formerly regarded by most clinicians as a truly specific remedy. Perhaps the majority of authorities no longer accept this dictum. The profession, as the result of abundant experience, are for the most part of the belief that other preparations of iron are at least equally efficacious. While engaged recently in making a collective investigation into the etiology, complications, mortality rate, etc., of erysipelas, many facts relating to the treatment of this disease were met with and noted. They were taken from the records of several hospitals in Philadelphia. In this connection, reference will be made to points bearing upon the internal treatment alone, the local treatment being discussed subsequently. Through the kind assistance of Dr. M. Booth Miller, important data were obtained from the records of the Pennsylvania Hospital. The cases had been under the care of Drs. Lewis, DaCosta, Longstreth, Meigs and others. From 1872 to 1876 inclusive, there occurred in this institution seventy-four cases of erysipelas, which were treated by the use of the tincture of the chlorid of iron alone (the average quantity being 1 drachm daily in divided doses), with three deaths, or a mortality of 4 per cent. Of these, thirty-six were so-called idiopathic cases and thirty-eight traumatic, those proving fatal being idiopathic. The ages of those who died were 66, 49 and 20 years respectively. The immediate cause of death was noted as exhaustion in the first two instances. No complications were recorded in the first instance, but extensive bed-sores developed in the third, while the second fatal case, (aged 49) developed edema of the glottis. Twelve of the cases reported from the Johns Hopkins Hospital were treated with iron and stimulants, the results being about the same as in those reported from the Pennsylvania Hospital.

From 1877 to 1892, inclusive, some of the erysipelas cases in the Pennsylvania Hospital were treated by other methods which will be spoken of presently. In sixty-six cases, however, during the latter period, iron alone was administered. A single death occurred, and in this instance the fatal termination was due to edema of the glottis. Forty-eight cases were classed as idiopathic and eighteen as traumatic. It is quite probable that during the period in which this series of instances occurred iron was depended upon only in the milder forms of the complaint for the following reasons: In the first place quinin was exhibited with the iron in very many instances and here the percentage of deaths was, as shown hereafter, quite high. In explanation of this fact we find that quinin was combined with iron in all of the severer types of the affection. That quinin is to be justly held responsible for the increased mortality (which occurred in the cases in which it formed a part of the internal treatment) is altogether unlikely. The value of iron is more reliably shown by the first group of seventy-four cases, above mentioned, than by the second, consisting of eighty-four cases, since in the first group *all* of the cases during the period from 1872 to 1876, inclusive, were treated by this remedy singly, while the death rate was only 4 per cent. These are favorable results when the status of the vital powers of hospital patients in general is kept in remembrance.

I have shown elsewhere that the general average mortality rate in hospitals is 6.57 per cent.; in private practice 4.16 per cent. Not a few of the seventy-four cases treated by iron alone manifested complications, and since some of these modify unfavorably the prognosis they should be mentioned here. In thirteen there were abscesses, (though it has been shown that this complication does not augment the death rate to any extent); in two, delirium tremens occurred; in two, general articular rheumatism and in one, scurvy. As pointed out in a previous paper,[1] preëxisting chronic affections render the outlook gloomy, but we find that one of the cases developed in the case of chronic pulmonary tuberculosis, another in a hemiplegic, both of which, however, recovered under iron.

The number of cases treated by iron and quinin in combination from 1877 to 1892, inclusive, was eighty-one, and of these fifty-five were idiopathic, and twenty-six traumatic. The average daily dose of quinin administered was from 12 to 16 grains. Ten cases proved fatal—a mortality of 12.3 per cent. The cause of death in two instances was acute Bright's disease; in two, delirium tremens; one, pyemia; one, exhaustion during fourth relapse; one coëxisting leg ulcer, and one cerebral sclerosis and bed-sores.

The complications noted from which recovery ensued, (while being treated with iron and quinin) were: Three suppurative otitis media; three abscess of the eye-lids; two delirium tremens; and bronchitis, sciatica, diarrhea, acute nephritis, bronchopneumonia, lobar pneumonia, iritis, abscess of foot, tonsillitis, angina pectoris, mastoiditis and fracture of the skull, one each. One instance arose during convalescence from typhoid ending in recovery. When such facts as the gravity of the type of the present series, and the character of the complications are kept in remembrance, the high mortality on the one hand and the apparent inefficacy of these remedies in combination on the other hand need excite no surprise.

My own experience in the use of quinin in erysipelas has been quite encouraging. During the past decade I have employed it in not less than twenty-four cases, its use being confined to instances in which the temperature touched 103 degrees F. With a single exception, in uncomplicated cases, (eighteen)

[1] The Complicated Conditions, Associated Diseases and Mortality Rate in Erysipelas, International Medical Magazine for October, 1893.

the nocturnal remissions were decidedly greater and the evening exacerbations less marked. In every instance, iron in some form (usually the tincture of the chlorid), was administered simultaneously.

During the years from 1881 to 1892, inclusive, twenty-six cases were treated in the Pennsylvania hospital by the use of pilocarpus, quinin being also associated in four of the cases, and in two, iron. There were seventeen of the idiopathic and seven of the traumatic variety, while the complications consisted in one delirium tremens, one acute articular rheumatism, one diarrhea and in two a relapse occurred. None of these proved fatal. These results create a favorable showing for pilocarpus, but it is to be stated that in but few cases were there manifested serious complicating conditions. Pilocarpus tends to produce increased nocturnal fall of temperature. The fact, however, needs to be emphasized that there is a strong disposition to spontaneous nocturnal remissions in temperature in this disease. Prof. J. M. Da Costa first used pilocarpus in erysipelas at the Pennsylvania hospital. His experience soon showed clearly that when given in the very early stage in one-sixth of a grain doses, hypodermatically, repeated three or four times at intervals of two or three hours, it often aborted the attack. It has been used by myself and others to a considerable extent at the Philadelphia hospital for its antipyretic effect.

If we accept its use to abort the affection, it is only in cases attended with high temperature, without decided morning fall, that pilocarpus should be employed. As a guide to the administration of this drug the conditions of the pulse and the heart can be relied upon. Pilocarpus, then, deserves a permanent place in the therapy of erysipelas.

But though I have been unable to obtain complete data, showing the treatment and its results from the records of the Philadelphia and Episcopal hospitals, the facts so far as ascertainable indicate that for twenty years the tincture of the chlorid of iron in large doses has been most frequently used with the same good results as at the Pennsylvania hospital. Quinin has been another favorite, administered in doses of 2 grains every three hours or 10 to 15 grains once or twice daily. In twenty-four cases gathered from various sources, ergot gave decidedly favorable results.

The treatment of severe symptoms. Of drugs, as antipyretics, phenacetin, acetanilid and antipyrin have been used at the Philadelphia hospital—a method of practice which I regard as being fraught with grave consequences. The best mode of reducing temperature is by means of cold sponges and cold or cool baths. The ice-bag applied to the crown of the head lowers temperature and simultaneously allays delirium and nervous excitement. For the marked nervous phenomena, such as pain, sleeplessness and active delirium, hyoscin hydrobromate, .01 grain hypodermically has been tried in numerous instances at the Medico-Chirurgical, Pennsylvania and Philadelphia Hospitals, and has given promise of being a valuable remedy. It should not be employed where the heart power is found to be greatly deficient. To fulfil the same indications the following remedies and recipes named in the order of their value and importance, have been utilized: Sodii bromidi grs. v, every two hours; or grs. xx–xxx at night; morphin one-eighth grain, and chloral grs. x in combination every half hour for three doses; potassii bromidii gr. x, and tincture cannabis indica mx. at bed-time, atropin one-eightieth of a grain and morphin one-sixth of a grain hypodermatically.

Local Treatment.—Local measures have always held a prominent place in the treatment of erysipelas. The list of agents which have been used topically is long and embraces all classes of therapeutic substances. Thus in the three series of cases before cited, which were treated at the Pennsylvania Hospital together with a few collected from other sources, no less than fifty different remedies and preparations have been employed. Among those most frequently used were: Elm in thirty-seven cases, lead-water and laudanum in twenty; subcutaneous injections of carbolic acid (1 to 40) in eighteen; oxid of zinc in fourteen; corrosive sublimate in solution in fourteen; vaselin or cosmolin in thirteen; solution of bicarbonate of soda in nine, and benzoated zinc ointment, cocain with laudanum, and ichthyol ointment with lanolin, eight each. Among the many measures of which trial has been made in a smaller number of instances are, collodion, glycerin, laudanum, unguentum potassii et belladonna, unguentum plumbi, liquor acid carbolici, liquor chloralis, liquor sodii hyposulphites, liquor sodii sulphatis, aqua calcis, mistura ol. lini et bismuthi, unguentum sulphur, mistura ether et camphor, (employed until a distinct coat is obtained), iodoform and dry gauze once daily, together with such simple and yet curiously varied measures as to dust affected parts with flour, zinc and starch; sassafras, hot flaxseed, poultices (every two hours), cold water cloths, warm water cloths, ice-bag, wet cloths, lotions and so on.

I have mentioned a large number of external applications—by no means all of them, at the risk of exhausting the patience of my hearers, for the express purpose of showing thereby the highly unsatisfactory condition which has characterized the local treatment of this disease down to the most recent times. Doubtless many of the preparations before mentioned were prescribed for their effect in excluding the air. To my mind this is a leading indication, and to meet it I prefer carbolized vaselin or cool carbolized oil.

A knowledge of the microbic nature of erysipelas has led to the employment by the profession of various antiseptic drugs and their application in various ways. I do not doubt that it is along this line the greatest advances are to be expected. Allusion has been made to the injection of carbolic acid. Here the aim is to check the spread of the inflammatory process by inserting the needle at numerous points just beyond the inflamed border. This method, introduced by Heuter, has been much practiced by Henry at the Philadelphia Hospital, and more recently by Osler at Johns Hopkins Hospital. The success thus attained is encouraging and the method is especially applicable in erysipelas migrans. As before stated, the solution of the bichlorid of mercury, (1 to 4000) was used locally in fourteen instances; and to these I can add the results of twelve others, treated at the Medico-Chirurgical Hospital and in private practice. It may be applied in the form of lotions to the inflamed surface, or it may be injected beneath the skin, just beyond the border of the inflamed area as in the case of carbolic acid. Quite recently it has been recommended to scarify the affected part and follow by

the application of a solution of mercuric bichlorid. This method of treatment I regard as being most promising as well as rational. It was certainly, in three instances in which it was resorted to in my own practice, followed by rather brilliant results, moderating more particularly the severity of the local inflammation.

Dr. Morris Booth Miller observed in the wards of the Pennsylvania Hospital quite uniformly good results from the local use of ichthyol ointment with lanolin, in the service of Dr. Da Costa and others. Before making trial of the corrosive sublimate solution I had used ichthyol locally, but the results were not brilliant. Dr. Charles J. Whalen has reported, in a recent issue of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (April 28, 1894), most strikingly favorable results in four cases of facial erysipelas, from the use of external applications of guaiacol —a mode of treatment which richly deserves a more extended trial.

Lastly, from the results of these statistical investigations into the subject of the treatment of erysipelas by personal observation and experience, I have arrived at the few brief conclusions following:

1. Proper attention to the diet is of paramount importance.

2. Stimulants are rarely necessary if the dietetic requirements are fully satisfied, but may be freely exhibited when indicated.

3. Of drugs, iron has been widely tested and found to be of great value, though it matters little which salt or preparation is employed.

4. Quinin when administered with iron, reduces the temperature, supporting at the same time the vital functions.

5. The use of antiseptics *per oram* is to be recommended.

6. Pilocarpus is in a small proportion of cases, powerful to abort the affection. To reduce temperature merely, pilocarpus should be employed in intense pyrexia, particularly where the favorable morning remissions do not occur.

7. The question of the local treatment of erysipelas has not as yet been set at rest, but agents intended to exclude the air and such as possess a germicidal power, especially corrosive sublimate, are highly useful.

8. That the erysipelococcus of Fehleisen which is found chiefly in the more superficial channels of the corium, may be attacked directly by the corrosive sublimate solution when the latter is used after scarification, is quite probable.

9. In erysipelas migrans the germicide should be injected beneath the skin, just beyond the edge of the part inflamed.

CHAMPAGNE AND STRYCHNIN IN CHEST TROUBLES OF THE AGED.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY G. EDWARD BUXTON, M.D.
NATIONAL CITY, CAL.

From these few remarks, which shall be presented briefly, do not conclude that my dependence upon the *vis medicatrix naturæ* is sublime, and faith in the medicinal value of drugs microscopic.

It is true my graduating thesis was upon the action of mind in medicine, but that was nearly a score of years ago, before the faith cure fad and, as the years increase so does my confidence in medicine intelligently administered; when failure comes, as frequently it does, it is because the situation has not been fully grasped or the vital forces have ceased to act.

A physician living on the shores of San Diego Bay sees many invalids from east of the Mississippi, a large proportion of whom come from the Atlantic seaboard; and among them are many advanced in years who come expecting to find in our perfect climate the perennial spring of youth and by partaking of its waters live forever.

While the tendency of this equable climate is to prolong life and, in some instances to an astonishing degree, as has been shown by Dr. P. C. Remondino in his researches in this direction, still the aged come to us sick, and here the aged sometimes die.

It has always seemed to me important that the sick, the feeble and advanced in years, should make the long journey across this entire continent, not in a few days as is now customary—from the Atlantic to the Mississippi, from the plains of Kansas to the high altitudes of the Rockies, and then drop down again to the sea—but on the other hand, that they should come in slow stages from point to point, occupying weeks or months in covering this great distance.

I have myself witnessed great distress on the trains bringing invalids, due to these changes; and patients have repeatedly told me of their sufferings on the way, especially in the higher altitudes.

In former times when the journey was made by team from the Missouri, west, the change came gradually, and when this "golden shore" was finally reached the health seeker was in full harmony with environment and likely long to outlive the time limit set by Holy Writ.

We do not see in the region about San Diego Bay the same good old pneumonia, double and otherwise, that we used to treat, for instance, in Boston or Pittsburg.

There is pneumonia and pneumonia; and this probably in some measure accounts for the great variety of treatment which has been and still is in vogue; why should we follow the authority recommending phlebotomy who wrote fifty years ago, and of patients living in the humid, insular climate of England, and about the disease as seen among those malt liquor drinkers—those roast-beef and plum-pudding eaters. Why should such medical experience be taken as the guide to proper treatment of cases in the high altitudes of the upper Missouri Valley, or among the corn- and hog-fed malarial dyspeptics of the lower Mississippi Valley, or how can we reasonably follow treatment appropriate to the sturdy young farmers of New England, and apply the same remedies in cases among the closely confined factory operatives? Or how apply any one of these methods, successfully, to the health seekers coming, physically bankrupt, from the Eastern States, to our land of perpetual sunshine, fruits and flowers; here where he may freely partake with no restrictions, of ozone from nature's vast laboratory reaching thousands of miles to westward and from which, wafted by the gentle Pacific zephyrs, it comes to these Californian shores.

There being then chest troubles—pneumonia is the name which like the broad mantle of charity

covers so much—manifesting their symptoms under such a variety of conditions in the old, the young, the feeble and the strong, it does seem to me impossible to settle upon any one plan of treatment which shall be appropriate to all cases and fit all alike well; and so I have used for my theme not pneumonia, but chest troubles, that the range might be sufficiently wide to still embrace a treatment applicable.

I am ready to believe that all the methods of treatment recommended by men of large experience have been appropriate and helpful in many cases to which they were suited.

But it is to the condition of the lungs, alone or mainly, that we are to look for guidance in our treatment; or, rather, shall it not be in a large proportion of these cases to a tired and worn out heart, which if not relieved gives up the struggle; thus rendering all treatment useless and the end fatal.

> "Find out the cause of this effect,
> Or, rather, say the cause of this defect,
> For this effect, defective, comes by cause."

Bartholow says: "The mortality from pneumonia has been and continues to be a subject of warm discussion on the part of those who advocate some special plan of treatment. Accuracy in diagnosis and skill in treatment are such uncertain elements in the statistics of mortality, under different plans of treatment, that but little reliance can be placed on the statistical method as applied to therapeutic questions. In determining a fatal result in pneumonia so much depends upon the condition of the individual attacked, or the diathesis with which his system is tinctured, that no comparison of systems of treatment can be accurate that does not take note of them.

"Death is usually due to collapse—that is, cardiac failure, and obtunding of the nervous centers. This state is not necessarily caused by purulent transformation—it may be due to failure of heart, and lungs, and brain, before the end of the stage of red hepatization. The effects of the pulmonary changes are enhanced by the stasis in the cerebral veins and ischemia of the arteries and by cardiac paresis."

It is surprising how little breathing capacity will suffice to carry on the functions of existence, as witness the model fashion plate for instance, or the "one lungers" in Southern California; which reminds me of the inspector on the boundary line who stopped three Chinamen trying to steal across to the United States; their names suggested Lung, and having lived some time in a health resort he entered them on his report as One Lung, Two Lung and Three Lung.

While we do not see any patients of the three-lung variety in San Diego County we do have many with but one, and often those with less than a whole one; and while these individuals do not, perhaps, consider themselves as strong as ever, still well enough to dispense with the doctor and able to attend to their daily duties.

And so in many of these pneumonias the lung capacity would seem sufficient to prolong life, but the blow falls upon the heart; it labors to force blood through choked channels and obstructions; the blood is impoverished by deposits of important elements; the heart muscles and others involved in the circulatory process weakened; the stimulating presence of oxygen in the blood current to encourage the over-worked organ absent, but, on the other hand, unusual quantities of carbonic acid present with its enervating influence on nerve and brain. And just here is the indication for the treatment mentioned; champagne and strychnin.

I am not going to tell you just how these do good—presenting this, that and the other theory with which you are all familiar; maintain that the alcohol is a food, or that it prevents rapid metamorphosis, conserves force, soothes and anesthetizes irritable nerve centers and satisfies a complaining stomach; but I simply say they do good and recommend, if you do not already use them often, to hereafter use them oftener. The strychnin as a tonic to the heart and muscles involved, seems to back up and sustain the good work begun by the champagne.

Whiskey does not act as favorably when given in these cases and the benefit, I conclude, does not depend solely on the alcohol administered.

Do not ask me what particular brand of champagne I recommend, for no fee having yet been paid by the proprietors, and having before my eyes the recent and awful warning of Hart's Apollinaris water and Hammond's testicular juice I forbear to name the mark. I do not say California champagne is the best in the world—it is unnecessary, for the doctors are on the ground, and they will test the matter for themselves and so be able to determine.

In 1884, while practicing in the city of Pawtucket, R. I., I was called in consultation to an aged lady of 74 years; she had been sick a week with pneumonia: both lungs badly involved; temperature 105 degrees; pulse 140, weak and irregular; respiration rapid; expectoration of prune juice character; delirium of a low muttering type; mouth open, tongue dry and dark brown; with picking at the bed clothes and involuntary evacuations. The case seemed altogether hopeless.

I suggested champagne and strychnin, and her attendant requested me to carry out that line of treatment and assured me he would esteem it as a great personal favor if I would assume the entire care and take charge of the case, for he frankly admitted he believed the patient would surely die.

Hypodermics of strychnin, 1-60 grain each, were given until the system manifested an increase of the reflexes especially of the lower extremities, every two or three hours at first, then at longer intervals and, as matters mended, granules of the same strength were administered by the mouth twice or three times a day; and a tablespoonful or two of meat juice was given every two hours, followed with pepsin and washed down with two or four tablespoonfuls of champagne.

Within twenty-four hours there was improvement; the heart steadier and less rapid, pulse fuller, the muttering ceased, the muscular agitation was quieted and the bed-pan called for when needed; additions were made to the nourishment, of hot milk and Vichy water; the champage was given in larger quantities but less frequently, and in a few days the old lady was convalescent.

No cast-iron rules are given to regulate the administration of these remedies; every case will be a law to itself, and the amount required will vary—give here, as always, remedies for results—give until the pulse steadies, becomes slower and fuller, until the heart does its work better, and then be governed by the subsequent needs of the particular case.

Under our heading, "chest troubles," we may speak of cases following la grippe; when the acute symptoms have subsided and that state supervened of prostration, with general collapse threatening, and the weight falling upon heart and lungs, with impeded circulation and the lungs in an edematous or hydrostatic condition; then, champagne and strychnin is appropriate treatment, and with suitable nourishment become ministering angels to restore and lead back to better things.

Quite recently an aged lady came to our city from Phila-

delphia; her family physician had carried her through an attack of la grippe and sent her here to Southern California, hoping she might more rapidly gain strength; but, in crossing the mountains by train she had taken what she called "a fresh cold," and reached her destination seriously ill; and when I saw her soon after she had a pneumonic deposit in the lower lobes on both sides.

She passed her eightieth birthday delirious with fever, rapid respiration and brick-dust expectoration; and the consulting physician did not help quiet the now thoroughly alarmed family by saying she would die; but she got her strychnin, champagne, meat juice and milk regularly, and in quantities which to my judgment seemed necessary to meet the indications; and she made a good recovery notwithstanding her last will had been made and her friends had said good bye.

In continued fevers, especially of that type which in Kansas City in the old days we called typho-malarial, this treatment is of great value; when the heart and lungs are distressed it arouses nature to make the supreme effort, and thus free the patient from those depressing influences which if not relieved would end in death.

In these days when the coal-tar products are so recklessly administered, the warning voice can not be too often raised, and a heart stimulating rather than a depressing course advised.

These few thoughts are presented rather as suggestions and not as dogmas; having no pet theory to promulgate and sustain at all hazards, no long list of cases and statistics has been made out, with quotations and extracts from an exhaustive roll of writers and authorities.

Some one has said: "The bibliography has become what the bearskin is to the British grenadier—it makes him look tall and imposing.

"You may be excused for being abashed in the presence of one who reels off a list twenty pages long of authorities consulted; unless he remind you of certain persons who make it a point of parading before you the names of all the eminent men with whom they have a bowing acquaintance."

My experience with this line of treatment during the past dozen years has not been invariably successful—what man saves all? But in a large number of cases, both in my own practice and coming to my knowledge, under the care of *confrères*, the results have been highly satisfactory; and such as that when compared with other methods have recommended this to more general use.

And while I do not expect to carry universal conviction by premises somewhat narrowly drawn, still I may expect this treatment or some modification of it in chest troubles of the aged, not only to maintain an excellent reputation but to increase in favor on closer acquaintance.

DIGITALIS IN THE TREATMENT OF CROUPOUS PNEUMONIA.

Read in the Section on Practice of Medicine, at the Forty fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY WM. WATT KERR, M.A., M.B., C.M.

PROFESSOR OF CLINICAL MEDICINE UNIVERSITY OF CALIFORNIA; VISITING PHYSICIAN CITY AND COUNTY HOSPITAL, SAN FRANCISCO.

It is not my intention to claim that digitalis is a specific in the treatment of croupous pneumonia, nor to insist upon its administration in every case of the disease that presents itself, but simply to state why it may be used and when, in my opinion, it ought to be used.

During the last three years there has been considerable discussion, both in Europe and America, upon the use of digitalis in the treatment of pneumonia, and the various writers may be divided into three classes: 1, those who claim that digitalis is a specific in the treatment of pneumonia cutting short or, as they express it, jugulating the disease if given in the first stage; 2, those who have found that the disease is but little if at all influenced by the use of digitalis; 3, those who on theoretical grounds maintain that the administration of digitalis in the treatment of pneumonia is inadmissible. It is not necessary for me to trouble you with the names of the gentlemen holding those different views; it is sufficient to state that in each class will be found men who are recognized in Europe and this country as prominent clinicians and reliable observers.

The objections urged against digitalis are that in pneumonia the congestion and consolidation offer an obstruction to the flow of blood through the lungs, so that the strain on the right ventricle is increased until that chamber is over-distended, and, as it can not empty itself, the blood accumulates in the venous system behind it; it is therefore urged that the administration of digitalis is liable to result in the heart becoming paralyzed in a heroic attempt to overcome the resistance. Such are the only important objections that have been offered, although one or two writers have devised a pharmacology of digitalis to suit their own views, as in the statement that "digitalis stimulates a weak heart by contracting the arteries and arterioles, by throwing the blood back upon the heart itself," a statement which is absolutely at variance with the results of experimental investigation. In estimating the value of a drug we must look upon all its effects and not only upon one. Briefly stated, digitalis increases the force of the systole by directly stimulating the cardiac muscle and intra-cardiac ganglia; it produces contraction of the arteries and arterioles which, together with the increased force, results in a rise in blood pressure; and lastly it shows the heart's action by stimulating the vagi and thus prolonging the diastole. Clinical experience shows that one result of these combined actions is to diminish venous plethora.

It would appear that in the study of the question before us there is a tendency to regard the divining power of the right ventricle as the only power by which the pulmonary congestion and the tendency to venous stasis can be overcome, and also to look upon the obstruction to the pulmonary circulation as the essential cause of cardiac failure; a very few minutes reflection will show that both experimental and clinical observation makes such a position untenable.

The depressed cardiac action in pneumonia is due te a variety of causes, chief among which are: 1, the toxic influence in the nervous system of the specific poison and the proceeds of tissue waste; 2, the pyrexia influencing not only the cardiac muscle but also the nerve centers; 3, the obstruction to the circulation through the lungs. It would be foreign to the purpose of this paper to enter into a discussion of these causes at present, but nearly every one can recall cases of pneumonia occurring in persons of fairly robust constitution where the disease assumed an adynamic type from the commencement, and cardiac depression was marked before the pulmonary congestion was at all extensive, affording positive evidence that other causes than obstruction to the cir-

culation through the lungs are accountable for the cardiac depression. Again, when crisis takes place the pulse becomes slower and steadier although physical examination shows that the consolidation is fully as great as it was twelve hours previously when the pulse was rapid and irregular. Surely if the embarrassed heart action be entirely due to the condition of the lungs the change in the pulse should not be sudden but a gradual improvement as the process of resolution progresses. A recognition of all the causes that may lead to depressed cardiac action in pneumonia is a very important aid to the proper treatment of the case.

The motive power of the left ventricle is an important aid to the onward flow of blood through the lungs into the left ventricle. Some years ago Goltz and Goule conducted a series of experiments upon dogs which showed that the endocardial pressure during ventricular systole was:

Left ventricle on an average about 140 mm. (mercury).

Right ventricle on an average about 60 mm.

At the commencement of diastole a negative pressure was established.

Left ventricle varying from — 52 mm. to — 20mm.

Right ventricle ranging from — 17 mm. to — 16 mm., or that the average motive power of the left ventricle at the commencement of diastole corresponds to about two-thirds of the propelling power of the right ventricle. It must be remembered, however, that this motive power does not remain constant throughout the diastole but is greatest at the commencement, and rapidly diminishes as blood enters the cavity. Further, this negative pressure is partly due to aspiration of the thorax during the respiratory movements, but a pressure of —24 mm. has been obtained in the left ventricle after the thorax has been opened.

Again, the driving power of the left ventricle is nearly four times that of the right, and the increased momentum given to the stream of blood by its more forcible systole will do much to overcome venous stasis; furthermore the more vigorous and complete the contraction of the left ventricle the greater is its motive power, and consequently the more active will it be in abstracting blood from the lungs.

The prolongation of the ventricular diastole is of great advantage as it rests the cardiac muscle, gives longer time for the blood to pass from the overfilled lungs into the left ventricle, and permits the ventricles to become fully dilated. The contraction of the blood vessels is the only action that remains to be considered. It is very questionable whether this is an objection, certainly it is not so with all men, as many physicians recommend the use of ergot for the purpose of producing this condition in a marked degree. Personally, I never have known digitalis produce more than that slight amount of tension which most of us are pleased to find. It should be remembered that any strain consequent upon contraction of the systemic arterioles must come upon the left ventricle; and the increased motive power due to the more complete systole of the left ventricle will go far to compensate for any pulmonary resistance due to contraction of the vessels in the lungs. There are only two conditions in which it is evidently a disadvantage: *a*, when pneumonia occurs in a patient who has fatty or degenerated heart; *b*, when the patient is extremely plethoric and the physician desires to distribute the blood as much as possible throughout the general system so as to delay its return to the right side of the heart. Under such circumstances the arterial contraction may be overcome by occasional doses of nitro-glycerin administered whenever the arterial tension rises higher than is desired.

While for the above reasons, and as the result of considerable clinical experience it is my belief that the administration of digitalis is not only permissible, but may be of great advantage in the treatment of pneumonia, I do not wish to be regarded as claiming for it any specific action; the hunt for specific remedies has not been profitable so far as the treatment of any disease is concerned, and the best results are still obtained by the physician who, as a consequence of knowledge and careful observation of each individual case, is able to recognize the approach of unfavorable changes and anticipate their effects by his treatment.

Recently some clinicians have given digitalis from the commencement of an attack of pneumonia, on the basis that the increased force of the cardiac contractions will tend to prevent or diminish pulmonary congestion; this is unnecessary. So long as the heart is doing its work well it should be left to itself and attention devoted to other parts of the treatment, such as reduction of temperature, elimination of waste matter, maintenance of the patient's strength, etc.; but just as soon as there is any sign of the heart becoming weak, digitalis should be given in such doses and with such frequency as the case demands. An average dose for such purposes is 15 minims of the tincture every three hours until there is some influence on the pulse, after which the dose may be gradually reduced.

Should the patient not come under observation until the venous system and right side of the heart are engorged to such an extent that there is too much blood for the ventricle to conveniently handle, I do not know of any treatment that will give better results than the administration of digitalis and the simultaneous removal of blood by venesection. In plethoric persons the same line of treatment is preferable to the administration of the vaso-dilators and cardiac depressants, such as aconite or veratrum viride, a process that has been justified under the claptrap phrase, "bleeding a man into his own veins," but which really means an effort to increase the capillary area and leave the tissues full of imperfectly oxygenated blood without diminishing the amount of blood that the right ventricle has to accommodate. As the systemic is quite distinct from the pulmonary circulation, an increase in the systemic capillary area will only relieve the resistance against which the left ventricle contracts by allowing a more ready flow of blood into the venous system, but will not diminish the current of blood that has to pass through the right ventricle and pulmonary capillaries in order that it may be properly oxygenated.

Digitalis frequently fails in the treatment of pneumonia because its action is essentially on the nervous system, and this is often deranged by the effects of temperature and toxic agents, so as to be insusceptible to the influence of the drug. Under such circumstances the simultaneous administration of strychnin will frequently increase nervous sensibility so that the effects of the digitalis can be obtained.

In closing, let me again protest against the indis-

criminate use of digitalis, and urge that the condition of the pulse should be the guide. Unfortunately, the introduction of the thermometer, sphygmograph and other mechanical aids to diagnosis have greatly supplemented the use of the fingers, and comparatively few of us can equal the physician of thirty years ago in interpreting the pulse. The thermometer and similar agents are invaluable in showing the existence of certain conditions; the fingers on the pulse show how the patient is being affected by them. When we give as much attention to the pulse as did our predecessors, and view the condition of the pulse in its relations to morbid anatomic conditions and the changes which these are liable to undergo, then shall we be able to follow a more rational line of treatment and more frequently conduct our patient through a serious illness.

DISCUSSION.

DR. AYER—Mr. President, I was very deeply interested in the paper just read. One thing that presented itself particularly to me was the Doctor's approval of venesection. I believe there are some cases of pneumonia in which no remedy is so efficacious as the lancet, but it needs to be used with very great discrimination. When the pulse becomes extremely feeble the expectoration is of a cellular mucous nature, respiration is very difficult and the patient appears to be in *articulo mortis*, I belive that venesection is the only agent that will restore him, or give him any prospect of recovery. I have used digitalis in my practice for many years, and in certain conditions of the heart I believe it is indispensable, but it should not be used, as has been stated by the author of the paper, without proper consideration. But that which specially impressed itself upon my mind was that we ought to return again to the much abused lancet in the severe and dangerous forms of pneumonia.

DR. DEWITT, San Francisco—Mr. President, I want to say in regard to the dose in pneumonia and in the latter part of the treatment, the paper, as I understood the Professor to read it, advocated as much as 15 minims. I want to say that in my practical experience I do not go beyond that, and I have never been able to give 15 minims to my series of patients, especially in continued doses, without developing what I term reflex action, which would really make me fearful to continue the dose at 15 minims. In many instances with this dose I have found nausea to follow. I have talked with a great many physicians in regard to this very treatment and many of them agreed with me, while others do not. I would like to know if the practitioners find much nausea in the latter stages of pneumonia.

DR. YOUNG—Mr. President, I have listened with great interest to the admirable paper just read. I do not know of anything that pleases us more than to have this tribute paid to those of us who in the past have followed this line of treatment. While I do not desire to be regarded as among the back numbers, I feel that possibly the institution of so many of the newer devices may possibly relegate the natural senses to the rear. I am very sure that good practice has been done by the touch and by the ear and therefore I appreciate especially that portion of the Doctor's paper.

With regard to the use of digitalis, I presume there is scarcely a man here whose hair has grown silvery, who has not had experience with it. I have never been able to use digitalis in the doses suggested by the Doctor. I generally accomplish my purpose with smaller doses. Among the remedies used none has served me to better purpose. I rise to commend both the papers that have been read, and regret that some discussion was not elicited by the first paper read before the Society, for it is a very exhaustive one and very interesting one from a scientific standpoint.

DR. FIRTH, Indiana—Mr. President, in the paper just read I have felt an interest from the fact that in my early practice, some forty years ago, I think I saved two patients by being suddenly called in where digitalis had been given. In both of the cases they had been given digitalis in the form in which we all used to carry it at that time, in the leaves; taking out a pinch and making a tea. In the first case the man had severe pneumonia. The doctor was giving digitalis tea in teaspoonful doses every two hours. I found him with a pulse of 40, the sweat profuse and he was very sick at the stomach. I told them to give him some whisky and set the tea aside until the Doctor came back. The man recovered.

The next case was something very similar—that one died and I think he died from too much digitalis. My experience has been that doses from 5 to 8 drops are all that I have been able to give without producing some sickness of the stomach. I believe that it is a most admirable remedy and I believe, as has been stated in the paper also, that we frequently find cases where the lancet is as valuable as the digitalis or more so. I believe in later years we have neglected to use the lancet as much as we should, and I think those of us who were in practice before the thermometer came into use had our fingers better trained than we have at the present time, when we have relied almost entirely upon the thermometer. I think the paper a valuable one.

THE CHAIRMAN—The gentleman in the rear of the room inquired about the dose of digitalis. We should like to hear any experience in that regard.

A MEMBER—If there is a drug in our rational materia medica that is unreliable, I think it is ordinary digitalis. In some cases we get an immediate effect, and in others we get little effect or practical failure on the part of the drug.

DR. KERR—I used the tincture of the United States Dispensatory.

There are a number of tinctures in use throughout the country; some use the German tincture, some the extract, some the tincturine and so on. In answer to the question of the gentleman calling upon old practitioners, I will say that I have used it for a great many years in the treatment of pneumonia, as well as of other diseases, but never for more than one or two doses in the quantity recommended by Dr. Kerr, and I have generally accomplished my end with small doses—4 or 5 drops. Seldom have I had nausea, except where there was an idiosyncrasy. With regard to the action of the drug in the larger doses there is almost universally nausea. I think the paper is one of exceeding value and of great interest to us all.

DR. HOLTON, Vermont—Mr. President, I think much of the paper we have just listened to, but I think we are getting away from the point in a measure. We want to bear in mind the action of digitalis; how it affects the heart through the nerve centers. When you first begin to give digitalis you get an action upon the heart in which there is occasionally an intermission, and then that intermission increases, and the result of that increased intermission of the pulse is the slowness of the pulse which you get. If you give digitalis in the inflammatory stage, as has been recommended in large doses, it seems to me you are simply whipping up a horse that is going about as fast as he can go, and by and by down he comes. The place for digitalis is plainly indicated when the action of the heart has become weakened. I think there should go with digitalis the nitro-glycerin in the early stages of pneumonia, so as to produce paralysis of the vasomotor system, keeping the blood away from the heart and not requiring it to pump against a dead wall of consolidated blood. Keep the blood in the extremities by dilatation of the vessels as much as possible, and you are accomplishing what our friend referred to as the purpose of venesection.

I am not so sure that our fathers were altogether wrong in their constantly using the lancet. They may have gone too far with it, but we certainly have not improved upon their treatment of pneumonia. When the whole vascular system is dilated from the poison of the retained material with pressure upon the brain and upon the vasomotor system, then give digitalis in 4 or 5 drop doses. I think the effect is better with this than with the infusion. If you want to get the effect upon the kidneys, use an infusion of digitalis. If the effect upon the heart, use the tincture. That has been my experience for a long time.

DR. JENKINS, Iowa—Mr. President, I want to emphasize what the last speaker has said. So far as my experience goes, there is nothing better than digitalis and nitro-glycerin, particularly when you come to that stage of pneumonia which is near the crisis. When you want to give strength to the heart and you have that slow irregular pulse, probably coming partly from digitalis, and partly from failure of the heart itself, it is then that I have seen a good many cases tided over. In such cases I give nitro-glycerin and digitalis with plenty of whisky, and I am certain that I have within the last two or three years saved a good many cases of pneumonia that formerly I would have lost. I have watched this carefully, and for that reason I mention this fact. I am sure that with these two remedies, with careful nourishment and whisky, we can save a great proportion of our asthenic pneumonia—those that seem to have about reached the crisis, but have not quite power enough to recuperate.

DR. AYER—Just one word more, Mr. Chairman. When the heart becomes irregular under the influence of digitalis I have never used nitro-glycerin, but have given freely of whisky and carbonate of ammonia. It is more immediate in its effect. It must be resorted to and followed up with the same degree of diligence, otherwise that irregular condition of the heart which indicates a great weakness (I will not say heart failure because I think we are running "heart-failure" too far into the ground) that we want to stimulate; otherwise there will be anemic astasia, and we will find our patients get out of our hands and in the hands of the undertaker.

DR. KERR—In regard to the different points taken up by the gentlemen discussing the paper: First, about the dose. The dose I recommended for an adult was about 15 minims of the tincture taken every three hours for a few doses until you begin to find some action upon the pulse, then diminish the dose according to the condition of the patient. Strange to say, I have found less nausea; in fact, it is rare that I get any nausea in pneumonic patients when using digitalis. I often have this trouble in pure cardiac cases, but in ordinary hospital or private cases it is rarely I am troubled with patients suffering from nausea. I do not mean to approve of the indiscriminate use of digitalis in all cases of pneumonia. Many cases do not require it at all. I think a great deal of trouble has arisen—and many of the cases where digitalis has done harm,—are not to be attributed to the use of the drug so much as to the bad judgment of the doctor. The amount of literature issued, the cheap medical literature of the present day, goes a great way to injure the practice of medicine. Many of these text-books are simply therapeutic memoranda which consist of a list of diseases down one side and a list of medicines opposite them. They do a great deal of harm, especially with medical students. They turn to one of these books and see digitalis recommended for pneumonia, regardless of the stage or individual character of the case. It is under such circumstances that the most of the harm arises. Those works are positively injurious. When men had less books and less literature with more expensive, and perhaps the average quality of the books was better, a man had but few books but he would digest them and would do some thinking. But with this cheap form of literature and these many books that are put under our noses comes the plea for the busy practitioner that he has not the time to read, and a man gets into a routine and does not think what he is doing.

DR. JENKINS—I did not recommend in every case the use of nitro-glycerin, but in those that I have referred to.

THE USE OF TURPENTINE IN THE TREATMENT OF DIPHTHERIA.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY E. W. KELLOGG, M.D.
MILWAUKEE, WIS.

"I dressed his wound, and God healed it!" modestly exclaimed Ambrose Paré, and his trite saying contains a truth too often forgotten in theory, and overlooked in practice.

No remedy cures. The utmost we are able to do for any disease is to remove, as far as possible the cause, and allow natural forces to carry on the various processes of repair, and the rational treatment of diphtheria whether situate in the fauces, nose, larynx or trachea should include surgical cleanliness as far as it can be attained.

Primarily, we must have correct hygiene; secondarily, nourishment, and lastly, drugs. The selection of a well ventilated room, isolation of the patient, absolute confinement in bed, fresh air and sunshine, the toilet, frequent changes of linen, immediate destruction of soiled cloths, thorough disinfection of the fauces, nose, throat and mouth, should not give place in any stage to internal treatment.

Few facts in medicine are better established than that this is a disease of local origin caused by the Klebs-Löffler bacillus, and that the subsequent constitutional symptoms are due to a poisonous principle secreted by this microörganism.

If this be true how important it is that the lives of these microörganisms be rendered as short and ineffective as possible. But whatever care may be taken, in a certain proportion of cases the larynx becomes involved, we hear the stridulous inspiration and crowing cough, and every physician knows the usual sequel.

There are exceptional cases of recovery, possibly one in ten, but the great majority die. In hospitals with trained attendants and all the numberless advantages which attend hospital work, tracheotomy and intubation doubtless save many lives.

Johann Bokai reported 109 intubations with 37 per cent. recoveries; Rauchfuss $\frac{87}{}$, with 30 per cent. recoveries; Muralt, in 318 tracheotomies, had 35.6 per cent. recoveries, and in 56 intubations 37.5 per cent.

Van Runke reported 365 intubations with 40.5 per cent. recoveries.

Marseilles intubated 68 cases with a recovery of 30.8 per cent.

Dillon Brown 350 intubations with 28.5 per cent. recoveries; Moll 92 cases with recovery of 40.2 per cent.; Waxham reported 1,072 intubations with about 27 per cent. recoveries; Agnew 11,696 tracheotomies with 26.25 per cent. recoveries; Monte, 12,000 tracheotomies with 26.8 per cent. recoveries; Lovet Monroe, 21,853 tracheotomies with a recovery of 28 per cent.

But it must be borne in mind that these are the

reports of specialists and are largely hospital cases. Tracheotomy in ordinary private practice is a dismal failure, shocking to the survivors, adding terror to a terrible disease and in the great majority of cases the precursor of a fatal result, disappointing to both physician and friends. Intubation in skilled hands has somewhat increased the percentage of recoveries but requires an extraordinary manual dexterity not possessed by the general practitioner, and only acquired by extensive practice upon the cadaver or living subject. This is an insurmountable objection to its general employment. Friends of the patient often will not submit to either operation, because so little can be promised, and thus we are often obliged to depend upon drugs for aid.

Prof. George suggested the use of oleum terebinthinæ several years ago, on account of its antiseptic action upon the air passages. It arrests fermentation and putrefaction and is very destructive to all forms of bacteria. The bronchial secretions are increased during its use, and without doubt its effect in croup is largely due to its local antiseptic action during its elimination from the system.

I do not advise turpentine as a certain remedy. The majority of cases will die in spite of any treatment, whether medicinal or surgical. But I wish to urge its employment at least as an adjuvant to other treatment, and to insist upon giving it in extraordinary doses. It is useless to give a few drops hourly. It must be given in frequent large doses and persisted in as long as there is any chance whatever. A child 2 years of age will take a teaspoonful every two hours without exhibiting any untoward symptoms whatever. I have given it in nineteen cases and have had eleven recoveries.

Dr. Shimonek, of Milwaukee, kindly reported three cases with one recovery. Dr. Malone, of the same city, four cases with two recoveries, making a total of twenty-six cases with a recovery of fourteen, or about 54 per cent.

Case 1.—The first case was a Polish child 2 years of age. She had diphtheria for four days when croup developed and she grew rapidly worse. In two days after the laryngeal symptoms began, Dr. Walbridge, of Milwaukee, was called in consultation. The child was cyanotic. The sternum was strongly retracted with each inspiration and we informed the father that the only hope for the child was tracheotomy or intubation. This he absolutely refused, and Dr. Walbridge proposed trying ol. terebinthinæ as an experiment, relating a successful case in which he had used it. The child was put on drachm doses every four hours and when seen on the following day was decidedly better though the laryngeal symptoms, difficult breathing and crowing cough were still marked. On the following day she was still better, and in three days all symptoms of diphtheritic croup had entirely disappeared and the child made a slow but complete recovery.

Case 2.—German boy 4 years of age, one of four cases of diphtheria in one room. He developed croup on the fourth or fifth day. His pharynx and nose were filled with false membrane. He, with the others, had been taking corrosive sublimate and iron in alternate doses. This treatment was continued and ol. terebinthinæ was given in teaspoonful doses every two hours. The cough was easier after a few doses. The retraction of the sternum disappeared. Inspiration became normal and he made a complete recovery.

Case 3.—German girl, 10 months of age. When first seen she had no visible false membrane. She was in the third stage of diphtheritic croup, cyanotic and greatly depressed. She was given brandy and ol. terebinthinæ in alternate hourly doses, but died in twelve hours.

Case 4.—A Norwegian boy, 5 years of age. Membrane was confined to tonsils and pharynx with a small patch at one corner of the mouth. Developed croup on the second day; characteristic cough and inspiration. Was given ol. terebinthinæ in drachm doses every two hours for four days and nights. The effects of the drug in this case were especially prompt and efficient. Although the laryngeal symptoms were continuous and severe, the effects of each dose could be seen in slower, easier respiration and a stronger pulse. He made a complete recovery.

Case 5.—A Polish boy, 4 years of age. He had been under the care of another physician for a week. Croup had developed when I was called to see him. A sister in the same condition died on the day before I saw him. When first seen his respiration was very difficult. The sternum falling in about two inches with each inspiration. He was given drachm doses of ol. terebinthinæ every hour for six hours; then drachm doses every two hours. The following day he complained of some strangury and the turpentine was given every three hours instead of every two. The strangury disappeared during the day, and on the following day he was so much improved that the family discharged the doctor. He was on the street three weeks later.

Cases 6 and 7.—Polish girls. Two of five cases in one room. The treatment was not carried out. Four of the five cases died, five successive physicians being called in four days.

Case 8.—German girl, 4 years of age. Third stage of croup. No membrane visible. Had only been sick twelve hours. Teaspoonful doses were given every two hours, alternating with brandy, but there was no appreciable effect and she died in four hours from suffocation. There was no visible sign of diphtheritic membrane in this case.

Case 9.—Three days later I was called to see a brother 3 years of age, and found his throat filled with false membrane. Four days later it reached the larynx. He was put upon the same treatment and took 8 ounces of turpentine during the next four days. Slowly but steadily all symptoms of croup disappeared and he made a complete recovery.

Case 10.—German boy, 6 years of age. Diphtheria followed by croup. He was given drachm doses every two hours for nearly forty-eight hours, but there was no effect. He grew steadily worse and died from suffocation.

Case 11.—A Polish girl, 2 years of age. Four children in the house had diphtheria, and her throat was filled with false membrane. When first seen she was breathing with the greatest difficulty. The parents positively refused to have further medical attendance as she was expected to die but they promised to keep up drachm doses of terebinthinæ every two hours. She made a slow but complete recovery.

Case 12.—A Polish boy, 4 years old; one sister with diphtheria followed by croup had died within a week. Every inspiration could be heard in any part of the house or out upon the walk. His face was cyanotic and his extremities cold. He was given drachm doses every hour during the day and every two hours at night. He grew no worse though the improvement was but slight for two days, when he began to improve and made a rapid recovery.

Case 13.—An Irish girl, 4 years of age. Treatment began about twelve hours after laryngeal symptoms developed, and it was kept up steadily for twenty-four hours but without benefit and she died from exhaustion.

Case 14.—German boy, 2 years of age. Diphtheria for six days followed by croup. Drachm doses were given early and regularly but without visible effect. He died forty hours later.

Case 15.—Polish child 1 year old. Diphtheria followed by croup. Strong retraction of sternum, crowing cough and difficult inspiration. He was given half drachm doses every two hours and improved from the beginning. The laryngeal symptoms disappeared in three days and he recovered.

Cases 16 and 17.—Polish boys 6 and 7 years of age, living in adjoining cottages. Both had marked symptoms of diphtheritic croup. The friends of both were informed that they would in all human probability die. Both were put upon drachm doses hourly. One died within twenty-four hours; the other slowly recovered.

Case 18.—German girl, 1 year old. Malignant diphtheria with invasion of larynx. Given drachm doses hourly, but without effect. She died some time during the following day.

Case 19.—German boy 3 years of age. Diphtheria followed by croup. Glands of neck considerably swollen, crowing cough and difficult respiration. Given drachm doses of ol. terebinthinæ every two hours alternating with brandy and iron. Recovered in four days.

Cases 20, 21 and 22.—Dr. Shimonek. All in one family. Turpentine was pushed until each one took a teaspoonful every two hours. The oldest, 6 years of age, recovered. The other two aged 3 years 6 months and 1 year 6 months, were

not improved. Both were intubated and both died. The turpentine was commenced as soon as laryngeal involvement manifested itse'f.

Cases 23, 24, 25 and 26.—Dr. Malone. All cases of diphtheritic croup. All were given teaspoonful doses in milk continuously. Two recovered and two died from strangulation.

SOME SUGGESTIONS AS TO THE TREATMENT OF ACUTE MANIA.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY JOHN W. GIVENS, M.D.

MEDICAL SUPERINTENDENT OF THE IDAHO INSANE ASYLUM, BLACKFOOT, IDAHO.

The phenomena of mind are of such infinite variety and complexity that it is impossible to describe or measure them accurately. Likewise the changing conditions of the mind organs that accompany these infinitely varying and complex phenomena are so minute and complicated that they are fully known only to Omniscience.

There is a wide practical difference, however, between the regular coherent mental phenomena of ordinary health and the wild, incoherent phenomena that we have labeled acute mania. And so there is a wide practical difference between the soft pulse, the clean tongue, the moist lips, the cool skin and normal temperature of ordinary health, and the quick, hard pulse, the furred tongue, the parched lips, the hot, dry skin and elevated temperature of acute mania.

The mind organs are, especially the brain and the end organs of the brain which constitute, not a simple, but an exceedingly complex structure. The cells of which this structure is composed are as unlike and as independent of each other as the cells of the liver are unlike and independent of the cells of the kidneys, and the blood supply of different portions of the brain is independent of other portions. These different cells, of which the brain is composed, are associated with the most varying phenomena. Some of them may be very active while others are correspondingly inactive.

The end organs of the brain, which are as surely instruments of mind as the brain itself, are even more complex, and a recognition of their place in the mind system widens the field of mind to a vast area, but anything less than this would not comprise the realm of mind and its disorders. This is a most difficult field to work and there yet remains very much for observation and experiment to reveal, but it is now settled that the brain is a complex organ, associated in its different parts with widely varying mental phenomena. This fact of complexity of the structure of the brain has much importance in the practical treatment of the various forms of insanity.

It is now a well established fact that function, or the manifestation of that mysterious something we call life, as surely affects structure as it is certain that structure affects function, and indeed it is true that the fact of function influencing structure is of greater practical importance than the fact that structure affects function.

In the trouble now under consideration, where there is excessive incoherent mental activity, it is a question of the greatest practical importance as to what is to be done towards controlling this incoherency and excessive mental activity.

The tendency of thought, in regard to this and kindred questions, has been that as there was underlying this incoherent excessive mental activity an abnormal structure, though ever so microscopic, of the brain cells or an abnormal condition of the blood, which was the immediate environment of the brain cells, or some disturbance of the end mind organs, as eye-strain, it was not worth while to try to do anything towards controlling or affecting at all directly the abnormal mental phenomena, but the patient was practically left uncontrolled, both mentally and physically, so long as he did not kill himself or some one else. In fact, it was thought to be as foolish to try to control these abnormal mental phenomena directly, while the abnormal structural condition continued to exist, as it would be to try to prevent the escape of steam through the safety valve by tying it down as long as the fire was kept up under the boiler.

One eminent author suggested that it would be as reasonable to hope to cure chorea by restraining the involuntary muscular manifestations of that disease. I do not know from what the practice originated, but this is undoubtedly the most successful method of treating chorea that has been brought to our notice; viz., enforced muscular rest. But to return to our question. We are learning that in all excessive functional activity there is great danger of the structure being permanently and injuriously affected, and that to prevent this and to aid the structure in returning to its normal type, rest; or, in other words, functional activity diminished to the smallest possible degree, is of prime importance. This principle of affecting structure is justly permeating the whole domain of treatment of disease, is bringing infinite blessing and relief from suffering to the human family, and is giving to every individual a better opportunity to live his little day with all of his parts fairly intact, instead of faltering out a wretched existence with a partially dead or distorted mind. This diminution of functional activity applies also to the end organs of the brain which may be perverted. I have found it easiest to obtain physical rest by confining the patient to his bed and allowing only quiet orderly nurses about him. To arrest the incoherent mental activity, I have found that requiring the patient to memorize prose compositions, insisting on absolute accuracy, to be of great service. This substitution of regular, orderly mental operations for the disorderly, incoherent mental activity can only be done with more or less success, but much can be accomplished by persistent effort.

This rest in bed will accomplish more for the patient in a few days than will months of ordinary treatment, allowing him to be about. If the patient with only incipient acute mania could be put to bed and kept there until his temperature, pulse and alimentary canal were brought into a normal condition, most cases of acute mania would be prevented. And if, after the full appearance of the phenomena of acute mania, this practice were invariably and strictly adhered to, I believe most of the cases would speedily recover.

Now in regard to the diet of the patient. It is certain that what goes into the alimentary canal will be a very important factor in influencing the various phenomena of the patient. The toxic or impoverished condition of the blood must be corrected largely by the influence of this factor, and it is one of the

defects of medical thought and study that they give too little attention to food.

It is not to the honor of medical teaching that the graduate knows more about the preparation and properties of drugs, than he does about the properties and qualities of suitable foods in disease.

The blood of the acute maniac is in both a toxic and impoverished condition. The toxic element is perhaps the more important, especially if the patient is now in bed and needing only a minimum of nutritive matter. The question of food is now, as always, of first importance and should receive as careful attention as the medicine. And be assured, oh ye of little faith, that the food of the acute maniac is not a matter of indifference in determining his condition, but is one of supreme importance and should always be recognized as such.

An ideal food in this condition would be one that, in the first place, would be attractive to the patient; 2, one that would not easily break up into toxic materials; 3, one that would afford that degree of nutrition needed by the organism in its diseased condition; 4, such as would be favorable to elimination to the end that the toxines in the blood might be eliminated.

Such an ideal diet is furnished by fruits in large variety, raw and cooked, fresh and dried, bread made without yeast, the very best butter, cream and milk. Meat should be given not more than once a day and in very limited quantity, much less than the average patient desires.

The fruit, mostly cooked, will afford a diet that is attractive to the majority of patients. It does not break up easily into toxic matter; it affords what nourishment is needed and it, above all other forms of food, favors the action of the eliminating organs.

In acute mania the circulatory apparatus seems to be in a tense, almost spasmodic, condition, and I know of nothing better to allay this irritation than equal parts of tincture of aconite and tincture of gelsemium in one drop doses with half an ounce of water every hour during the waking hours. This also favors gentle diaphoresis with its elimination.

Strychnia has justly a high reputation in the treatment of acute mania of alcoholism and I think it is very useful in the ordinary acute mania of debility, toxemia and overwork, and it may be safely used in all cases where there is not an acute inflammatory condition of the brain or its membranes, but this is an exceedingly rare condition.

In regard to the use of laxatives, they will rarely be needed with the diet mentioned, but when they are needed they should be used in small quantities and given as often as each meal time, with a view to establish a physiologic function of the alimentary canal and not the pathologic condition of even moderate purgation, much less the violent purgation of the good old navel divider.

In regard to sleep, which is usually disturbed, its physiologic character should be kept in view and, while drugs probably can not produce that balmy sleep, "Nature's sweet restorer," because natural sleep is a resultant of antecedent conditions and these conditions can not be produced by medicines, I believe that when medicines are given for the purpose of inducing some kind of sleep they should be given in sufficiently large quantities to secure the condition of profound slumber, but not oftener than every second or third night and less frequently if possible. If the organism is clean and well nourished—and this means physiologic perfection, sleep will take care of itself, and it is this cleanliness and nutrition of the organism that is the aim and end of all treatment, whether it be curative or preventive.

The physician who studies the preventive side of insanity; the side of broadest and grandest service to the human race, must come more and more to consider the elements of rest and food in connection with those defective organisms to whom a slight variation from health means the darkness and despair of insanity. In this work of prevention of the most blighting evil of our civilization, no effort or experiment should be left untried, for though,

"The brain within its groove runs evenly and true;
But let a splinter swerve, 'twere easier for you
To put the water back when floods have split the hills,
And scooped a turnpike for themselves and blotted out the mills."

A CASE OF LITHEMIA SIMULATING CEREBRAL TUMOR.

Read by title in Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, Cal., June 5-8, 1894.

BY H. G. BRAINERD, M.D.
LOS ANGELES, CAL.

The researches of Garrod, Haig, Herter and many others have shown so conclusively that a gouty condition may be the cause, or at least an important factor in the production of asthma, bronchitis, pleuritis, gastritis and nephritis, and the careful study of the urine in migraine, chorea, neurasthenia and many cases of hysteria and epilepsy, leave little ground for doubt that the retention of the uric acid in the system is an important factor in their causation, and often the sole cause; but the symptoms usually attributed to organic cerebral disease are so rarely due to gout that I report the following case:

On June 20, 1893, J. S. was brought to me by his attending physician (Dr. King) with the following history: Age 47, married, farmer, weight in health about 180, height 6 feet, family history good, with the exception that an older brother died from some brain disease; for many years was very dissipated, but for the past ten years has been a moderate drinker. Denies syphilis, and all his four children are healthy. In the last two years has had a short attack of rheumatism, and considerable gastric disturbance, and quite frequently severe headache. In March, 1893, began to have a constant headache, lost his appetite, became easily fatigued, and for two months has been unable to attend to his usual duties. Exposure to the sun increases the pain in his head, and often without any exposure has paroxysms of intense pain. Has spells of vomiting, explosive in character, and occurring most frequently in the night or early morning. Complains of sudden seizures of vertigo, at other times numbness and weakness of left arm and leg. Thinks he has never entirely lost consciousness in these attacks. On attempting to walk there is a constant tendency to go to the left. Has grown dull and moody, irritable and very forgetful. Lies in bed most of the time in a semi-conscious condition, but sleeps only two or three hours out of the twenty-four, and then is distressed by frightful dreams. Is obstinately constipated, and has lost about twenty pounds in weight in the last few weeks. Has little fever and often temperature is subnormal. To-day, his countenance indicates suffering. Gait somewhat uncertain. Can not walk in straight line with eyes closed, but goes to the left. Can not stand on left leg alone, but stands fairly well on right leg. Face and neck have a congested appearance. Speech slow and hesitating, which his attending physician says is unnatural. Pulse 80. Temperature 99 degrees. Pupils moderately dilated, left more than right. Reaction to light sluggish; no strabismus. Says he can not read much without blurring of vision and increase of pain in the head. Percussion on skull is painful but no locality seems specially

sensitive. Grip of right hand shows 85 on dynamometer, while left only gives 54; and there is great loss of muscular tone everywhere, and decided left hemiparesis. Ophthalmoscopic examination shows retinitis in both eyes. Urine scanty; about twenty-four ounces in twenty-four hours. Specific gravity 1024; sharply acid; no albumen. No casts, but immense quantities of uric acid, urates and oxalates.

This train of symptoms, viz., persistent headache with frequent exacerbations of intense pain, the mental change, slowness and hesitancy of speech, vertigo, sudden attacks of left-sided numbness and weakness, explosive vomiting, rapid emaciation, slight left hemiparesis and slight double retinitis, led me to strongly suspect an intercranial growth; but the examination of the urine gave me hope that his condition might be due to lithemia, and accordingly all alcoholic stimulants were interdicted. A rigid milk diet, with the free use of pure water, and the daily use of one to two drams of soda bicarbonate, well-diluted, was advised, together with broken doses of calomel sufficient to keep the bowels freely open.

A few weeks later was gratified to receive a note from his physician saying: "I placed S. upon the treatment suggested and he made a perfect recovery," and I learn (May 18, 1894) that he has with slight exceptions enjoyed good health since.

The rapid and continued improvement, together with the decided change shown in the character of the urine under the line of treatment outlined, convinces me that this was one of the protean manifestations of gout.

HYSTERICAL VOMITING, RESULTING IN DEATH.

Read in Section on Practice of Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, Cal., June 5-8, 1894.

BY H. N. RUCKER, M.D.

OAKLAND, CAL.

During the latter part of February, 1893, I was invited by my friend, Dr. J. H. Todd, of Oakland, to see a single lady, aged 21 years, who was suffering from severe vomiting, which had continued for several days without abatement. The Doctor had patiently tried almost every remedy recommended for such conditions, without benefit. The patient could receive no food except by enema; the vomiting was so frequent that but little sleep was obtained, and she was fast becoming exhausted. After a careful examination, I was ready to agree with his diagnosis—hysterical vomiting. Nothing short of large doses of morphin, a half grain hypodermically, gave any rest, and this afforded but a short respite from the vomiting. Thus the case went on till death took place; the vomiting continuing in the very last throes of dissolution. A careful examination of the abdominal viscera revealed nothing to account for the severity of the symptoms. The stomach was slightly enlarged, and its walls somewhat attenuated. The uterus was normal in size, and free from disease. The ovaries were natural, except they were dotted over with irregular white spots about the size of an ordinary pea, which resembled more the effect of an application of strong carbolic acid than anything else it could be compared to. The ovaries were removed and preserved in equal parts of alcohol and water, and in three or four days the mottled appearance had entirely disappeared. The father of this patient is now 63 years old, and in fair health. The mother died suddenly in a convulsion at the age of 49, while talking to a visitor. She was of high nervous temperament, but always retained fair self-control. She suffered from a severe fright a short time before the patient's birth. The patient began menstruating at the age of 13, and was never so well afterward. At the age of 16 she went a year without menstruating; during which time she had free leucorrhea. Shortly after the death of her mother, she received quite a shock in a railroad accident; was ill for a time, being very nervous and much depressed; menstruating profusely every two or three weeks. She was treated two months in the East for "womb disease," by local applications and with electricity. She then changed her residence to California and was for a time fairly well. One evening while playing the piano, she suddenly became pale, nervous and tremulous, and was pronounced on the verge of convulsions. This prostrated her in bed for two months, during which time she suffered greatly from nervousness. After getting better, was treated again for five months continuously for "womb disease;" took a deal of medicine but was not benefited. She then placed herself under the care of another physician who treated her four months for "enlarged ovary," by electricity, with no good results. She then went to a hospital under the care of still another physician, who treated her for two months for "enlarged ovary;" was kept in bed on milk diet. At the end of the two months she had an attack of vomiting lasting two weeks, and was for three days without any food whatever; then became better and her appetite returned. The womb was then treated locally for a time, and afterwards she was treated by another physician by very vigorous massage over the ovaries. This had the effect to greatly increase her nervousness, and she began vomiting again, and in this condition she came under Dr. Todd's care.

Cases of such gravity are seldom met with; but cases of striking similarity fall to the lot of almost every physician. Such an instance adds wonderfully to experience, and teaches a lesson that should not be forgotten during a lifetime. Viewing this case on its merits as revealed by its history and the result of the autopsy, we become profoundly conscious of that lack of intuition and professional acumen which as physicians we strive to attain. There are two dominant features that simply eclipse everything else in considering the case of this unfortunate young woman: 1, a pernicious inheritance; and 2, the treatment during nearly all her adult life for something she never had. To a hasty consideration of these two propositions I invite your attention for a few moments. The physician's skill may be totally inadequate in eradicating the faulty inheritance which the hysterical or otherwise neurotic patient brings to him for treatment, and his duty lies, in so far as is possible, in recognizing its protean forms and directing the most intelligent treatment, chiefly of a hygienic nature. The laws of heredity and the survival of the fittest, pervade all nature. While we are powerless to change the temperament and character of individuals, we may do much to aid in maintaining their mental equilibrium, the preservation of health, and the well-being of their offspring. Impressionable subjects are so by inheritance; but nearly all show sufficient nerve stability till the age of puberty, at which time one of the great metamorphosing periods takes place, and a test of the equalizing forces is made. If perchance the individual has been surrounded by the best influences, moral and hygienic, the predisposition may remain passive, and the tendency to disease averted.

It has been said: "Every being has thousands of complex inherited traits that it can not use—latent gifts from the past." This thought suggests the boundless scope of our professional science in dealing with the hygienic conditions of mankind. In some respects our obligation is coequal, if not paramount to that of the clergy in directing and developing those traits which will best conduce to the welfare of the individual, and to that of his progeny for all time to come.

There is nothing in all the realm of nature that differs so essentially from its primitive type as does the human race; and on this account no one knows better than the intelligent physician the difficulties in the way of the successful practice of medicine.

The activity and vigor which gave such promise in early manhood, suddenly yields to inherent taints and the rapid oxidation of tissue; while the apparently grave physical condition will be changed by a renewal of normal functions, and existence crowned with ripening years. In one instance there is a fitness for adaptability to the exigencies of life as they may arise. In the other, there is sorrowful evidence of violated laws somewhere in the economy of nature. While the physician may find it impossible to bring health to one cursed by faults of inheritance, yet in passing to the consideration of the second proposition, the observation is offered, that too much care can not be used in the proper diagnosis of ailments in neurotic subjects. To tell a young, nervous, hysterical girl, that she has ovarian or womb disease because she may have leucorrhea, menorrhagia or neuralgia, may have the effect to blight her life, and make an invalid of her during the remainder of her existence. Yet that is the mistake that was evidently made in this patient's case, and is too frequently made to the discredit of our profession When she received the intelligence that she required treatment for ovarian and uterine disease, she was prepared to believe it; for her first thought was, that she had some of the symptoms that were common to those diseases. The suspicion and dread which she formerly entertained took full possession of her, and she became morbid on the subject.

When the treatment she was receiving did not afford her relief, she became despondent and expressed the fear that it would be but a question of time until she would be obliged to submit to the removal of her ovaries. When her physician failed to give her the hoped-for aid, she sought others in turn, with but one fixed purpose; that of being cured of disease affecting her generative organs. Had she received in the beginning kind encouragement, and the assurance of her medical adviser that she had no disease of her generative organs, but that the symptoms which she had observed were but the signs of anemia from an over-taxed nervous system, how different her life might have been. If with changed environments and proper medicinal treatment she had not grown strong and rugged, she would have at least been relieved of the horrible phantasm that haunted her day by day, and was in the main the expression of morbid mentality. During all the months of treatment she says she did not grow any better, but on the contrary grew worse. When we consider her history it does not seem surprising. What good could we expect from making topical applications at stated intervals to the uterine and vaginal canals of a young woman suffering from exhausted nerve force with all its attendant ills?

Exhausted nerve cells produce disordered circulation, resulting in general and localized anemia. Deficiency of blood supply, or of improper quality, result in irritation and instability of muscular tissue together with trophic changes. Hence in cerebral anemia, we may look for headache. Tremor is the chief symptom of weakened muscles. The heart deprived of nourishment, beats rapidly and unsteadily. Unnatural erethism, is due to exhaustion of the sexual powers, the result of lascivious thoughts and sexual excesses. The bladder may be affected with spasm, and become so irritable as to give rise to the suspicion of stone. In this connection I venture the assertion, without fear of intelligent contradiction, that in eight-tenths of the cases of tenesmus and frequent micturition in females, when there is not positive evidence of organic disease, the fault is in the nerve centers of the sympathetic system. Through disturbed functions of the great sympathetic nervous system whereby the caliber of blood vessels are regulated, we may account for the increased secretion, at times, of mucous membranes. I offer the opinion, after a somewhat varied experience, that a large proportion of the cases of leucorrhea, and menorrhagia, especially in young unmarried women, are due simply to neuroses. The best examples of this kind are to be found in the modern boarding school; or among those who have passed the regular course in such institutions.

A few lines from Dr. Thomas A. Emmet are pertinent to this question: "On the approach of puberty the nervous system becomes dominant in the female organization, and is as susceptible to external influences as the barometer is to atmospheric changes. But the simile is not applicable later on, since an impression for good or evil once made upon the nervous system, especially while in the adolescent period, is permanent. It may lie dormant in the after-life of the individual, but will almost surely be transmitted to future generations. . . The girl's transition to womanhood is rapid; her organs of generation acquire a preponderating influence in her complex organism, and her nervous system is fully taxed to secure and maintain that general harmony of function which constitutes health. The slightest defect in her sexual organs may, through the medium of the sympathetic nerves, produce functional derangement elsewhere. . . . At the period of life when the young girl's whole nerve force is taxed for the full development of her organs of generation this force is deflected by hard study. . . . She is subjected to the emotional influences of music and light literature, which, in a sensitive nervous system, are capable of arresting the development of the uterus and ovaries. The spirit of emulation which is encouraged in all schools has a deleterious influence on the nervous system of girls at any age, but particularly about the time of puberty."

No examination of the brain and spinal cord was made in the case of this patient; nor would such examination have revealed anything, except, perhaps, a most patient and searching microscopic one. When the elements of an electric cell become unduly consumed or corroded, or the fluid too weak, the current loses force, becomes unsteady, or ceases entirely. In one sense, the illustration would seem to offer a ready solution of the real condition of this patient. The nerve cells were exhausted, had lost their functions, were worn out. Nerve counter-balance was gone, and the muscles of the stomach were thrown into spasms which nothing but death relieved. Two of her many physicians informed her she had enlarged ovaries; one claiming the left ovary to be as large as a man's fist; and said she would not be better till it was reduced. She continued worse instead of better, and I submit these morbid specimens for your judgment as to whether they bear evidence of ever having been enlarged.

Ingratitude.—Two of the principal hostelries in the far-famed Adirondacks region notify the world that consumptives are not wanted as guests under their roofs. Another instance of kicking away the ladder after one has mounted. It was the consumptives who largely advertised and built up the region.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE STOMACH BY THE STOMACH TUBE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY ALFRED W. PERRY, M.D.
SAN FRANCISCO, CAL.

The diagnosis and treatment of diseases of the stomach, which had been so uncertain, has during the last few years become as satisfactory by the employment of modern means of investigation as that of any important organ. The use of the stomach tube and improved chemic methods of testing the stomach contents dates historically back only about fifteen years, yet it is within the last five or six years become popular.

Most disorders of the stomach depend chiefly for their painful symptoms and consecutive disorder of nutrition on fermentations, or abnormal accumulations in quantity or quality of the stomach contents. These fermentations may be the acetic, lactic, butyric, cellulose and others less known, which last produce various lately discovered poisonous alkaloids or so-called ptomaines.

In health the so far known conditions for normal gastric digestion are: Gastric juice containing 14 to 24 parts for 1000 of hydrochloric acid; an active peristaltic motion of the stomach; a proper amount of pepsin; a temperature of about 100 degrees F.; a complete emptying of the stomach within six or seven hours.

An absence or deficiency of any of these conditions disorders digestion to some extent and leads to fermentation.

The germs of the acetic, lactic, butyric and cellulose fermentations are always present in the gastric contents, but the above named conditions for normal gastric digestion do not favor their rapid development, except the lactic, which develops normally during the first fifteen to thirty minutes of gastric digestion, and it is then arrested and kept with the other germs from increasing by the augmenting hydrochloric acidity of the gastric contents.

A deficiency of some of these is frequent, but produces no disease for a long time, for these functions are largely complementary and failure of one may for a long period be compensated by greater activity of another. Digestion of albuminoids in the stomach may be absent for months by total want of hydrochloric acid, without failure of nutrition. The acetic and butyric fermentations, which take place in the absence of hydrochloric acid, are prevented by a more active peristalsis, and quicker emptying of the stomach.

USE OF THE STOMACH TUBE IN DIAGNOSIS.

By means of the stomach tube we remove portions of stomach contents at any period of digestion, and determine the amounts of hydrochloric acid, peptones, starch, dextrin, pepsin, mucus and of abnormal products, by appropriate chemic tests.

By the stomach tube we alternately fill and empty the stomach with air, to determine dilations and displacements by percussion.

The introduction of the stomach tube is generally easy, but sometimes impossible from the production of a spasm of the glottis. I have had cases where the tube introduced with great ease, seemed to be in the larynx, although no air came through it. I was only certain it was not, when I found the same spasm of the glottis and suffocation was caused by touching the back of the pharynx with my finger. The use of cocain locally, of ice, and chloral by the mouth will often not present the spasm. I find it a good test where use of the tube is indicated to touch the back of pharnyx with the finger; if this can be borne without suffocative symptoms, the use of the tube is possible.

The too frequent use of the stomach tube often produces a sense of soreness lasting several hours. I find that its use every three or four days is sufficient in most cases where indicated. In the intervals of lavage, an antifermentative is useful, and for this purpose I prefer resorcin in 5 grain doses immediately after meals. It is a derivative of phenol, has a pleasant taste, is caustic in very strong solutions, is a local sedative and antiseptic. It is usually given in 5 grain doses but 30 grain doses are not dangerous. It does not interfere with the conversion of starch into sugar by the ptyalin of the saliva, or the digestion of coagulated albumen by the gastric juice. This I have found by its action in a mixture of saliva and boiled starch containing 1 part per 1000 of resorcin, and also in an artificial gastric juice containing the same proportion of resorcin acting on boiled egg; 1 part per 1000 is three times the strength which would exist in the stomach, taking 5 grain doses after meals.

In the diagnosis of ulcer and cancer of the stomach, the stomach tube has great value, but the conclusions are not positive. In simple ulcer the amount of hydrochloric acid is increased above the highest norm of .24 of 1 per cent. In cancer the hydrochloric is absent or below .14 of 1 per cent. the lowest norm.

The mere presence of a cancer in any part of the stomach does not stop the formation of hydrochloric; it is only when besides the cancer tumor there is an infiltration of the greater part of the stomach walls with cancer elements that atrophy of the secreting cells occurs.

The treatment, by the stomach tube, of emptying and washing out the stomach gives better and quick results than any other in the following diseases: Acute gastric catarrh; so-called bilious attacks; chronic gastric catarrh; cancer of the stomach; obstinate hiccough; vomiting persistent; the various fermentations in the stomach; dilatation of the stomach.

Attacks of acute gastric catarrh, which from one to four days, are shortened to a few hours by lavage of the stomach.

Chronic gastric catarrh yields the most brilliant results to lavage; it is almost incurable otherwise. Relief is immediate; cure usual in a few weeks.

Obstinate hiccough threatening death by exhaustion is cured immediately.

The various fermentations in the stomach causing severe headache, epigastric and intercostal pains, lumbago, ecthyma, are promptly relieved and usually soon cured with their consequences.

Dilatation not depending on pyloric structure is usually the result of fermentations; occasionally after a severe acute disease it may be a cause of fermentation. It is only curable by the use of the tube. In cancer, lavage two or three times weekly gives great relief.

DISEASES OF THE ALIMENTARY CANAL. TREATMENT.

INTERNAL AND EXTERNAL HYDROTHERAPY. MEDICATION.

Read before the St. Clair County, Ill., Medical Society, June 7, 1894.

BY JAMES OSBOURN DeCOURCY, M.A., M.D.
ST. LIBORY, ILL.

Cleanliness is said to be next to godliness—a very old adage which I have found to be no less true in the treatment of all diseases which have come under my observation. It is my custom to first make clean my patient, outside and inside so far as practicable, by the free use of pure water and good soap. I have never seen nor had a bad result from the use of these agents. I am of the opinion that in many cases all the medicine that is needed is the free judicious use of water, abstinence from food, plenty of pure air and sunshine.

These agents, together with a clear conception and observation of the laws of hygiene will figure very conspicuously in the future of medicine.

While I am a strong advocate of the free use of water in the practice of medicine, I also have confidence in the therapeutics of drugs, and as I believe, have seen many good results from the intelligent use of them.

In the treatment of disease there are three distinct steps. They are: 1, a correct diagnosis—ascertaining the cause; 2, absolute cleanliness by irrigation internally and the free use of water externally, and by the use of disinfecting agents; 3, repair the damage—heal the wound—restore nature—rather assist nature in her work of reconstruction. This should be done by the skilful use of the tools best adapted to the work to be done.

In treating disease of the alimentary canal generally, and in the three following cases which I report to you I have endeavored to follow the foregoing principles. My results have been all that could be desired. They have been both interesting and profitable to me, and I trust they may be of some interest to this Society:

Case 1.—Miss Mary, aged 20; American; farm type; medium size and rather stout; was taken at night with pain in lower bowels, followed by watery stools.

I was called in the early morning, March 15. Found her excited and suffering very much pain in the bowels; also complained of severe headache. Temperature was slightly elevated. Pulse regular, but rapid and weak. She gave history of having had several severe attacks of ulcerative colitis, during one of which she came very near to death's door.

There was some tenderness on palpation and percussion over the major part of the abdomen and the bowel was very active in evacuating itself. The stools were thin, and contained mucus with a little blood. When food was taken into the stomach, especially milk, it was usually ejected in curdy masses within a few minutes.

The usual agents were used to abate the pain, to check the vomiting; also to restore the bowel to its normal condition.

The pain was greatly reduced and the rebellious condition of the stomach almost entirely overcome; but the bowel persisted in its active work of draining the system. The stools became offensive, containing more blood and mucus.

A portion of the lining membrane of the intestine about eight inches in length was passed with the feces the fourth day. Having a four ounce bottle of Marchand's glycozone, I concluded to try it. So other internal agents were discontinued, and 2 drachm doses of glycozone given every four hours in a wine glass of water. The bowel was washed out morning and evening with warm soap water, followed by an ounce of tepid water containing a half drachm of tr. opium.

At the end of the first day after beginning the last method of treatment there were marked signs for the better; and the patient expressed herself as feeling less bad. The treatment was continued with constant improvement in the case until the glycozone was all taken, at which time the bowel and stomach were under good control. Pain was all gone; and after a few days of convalescence the patient made a perfect recovery without any further treatment.

Case 2.—Ely, aged 32, medium-size man, general health uniformly good; a blacksmith by trade. First saw the case with Dr. S. at 4 P.M., March 30.

On arrival at bedside of patient, found him in what seemed to be a semi-comatose state. The odor of whisky was very marked. Examination of the matter ejected showed it to contain blood and mucus.

A few drops of chloroform with cold water were given, and a cold pack placed over the epigastrium to check the vomiting. The following powders were given to quiet the stomach and to move the bowel:

R Calomel . . . . . grs. viii.
Podophyllin . . . . . " ii.
Subnitrate of bismuth . . . . . " xii.
Bicarbonate of soda . . . . . " iv.
M. Pulvis. No. 4. Sig. Dose, one powder every hour.

The father, mother and wife of the patient gave the following history:

"For the last five years the patient has been drinking whisky, and for the past two years, in particular, he has been drinking too much. Last October he had an attack somewhat like this, but recovered in about one week.

"His general health has always been good. He has been drinking too much every day for a week now—keeping his whisky in the shop. He was well this morning. Worked in the shop until noon. Ate a hearty dinner, but was taken sick soon after eating and in a short time began to vomit."

Called again at 5 P.M. Found him quiet, but suffering. Left some Dover's powders to be given during the night if necessary.

At 2 A.M. March 31, was called again. Found him excited and suffering very much. Quick pulse and slight elevation of temperature. Gave him hypodermatic injection:

R. Morph. sulph. . . . . gr. ¼.
Atropin . . . . . " 1-150.
(Parke Davis.)

His wife gave history of his vomiting at irregular periods until 10 P.M., after which time nothing could pass either up or down. Impossible to swallow water. Upon careful inspection, the whole mucous membrane lining the mouth and throat as far as could be seen was in a state of hypertrophy. Indeed, it was simply cooked. (Pardon the use of the word, cooked; but it expresses the condition.) The stomach, also, was in a state of inflammation. What was to be done?

Internal medication and alimentation was out of the question. Recognizing the emergency of the case, I determined, if possible, to dissolve the mucus about the affected parts, and to attempt to reduce the edema of the membranes.

The nose and throat, therefore, were sprayed every twenty minutes for awhile with Marchand's peroxid of hydrogen, and a 40 per cent. solution of the same used as a gargle every hour, until he could swallow water, which required forty hours. An enema of warm soap-water was given, and repeated, which produced a soft stool; and he expressed himself as feeling better.

The spraying of nose and throat, together with the gargle, also the enema, were continued every day. The inability of the patient to swallow made alimentation by the stomach impossible, to say nothing of the inability of the stomach to perform the work of digestion. Boiled milk and warm soups were regularly given in small quantities by the rectum.

On the morning of April 7, the whole lining membrane of the esophagus was expelled in the attempt to vomit. The membrane was neither broken, nor perforated; but was turned inside out. I have preserved the specimen in an alcoholic solution; and take pleasure in presenting it herewith for your inspection and examination.

There was some fever most of the time. The temperature running up as high as 102. The pulse varied from normal to 90, and a few times went up to 100.

The general condition of the patient was fairly good—indeed, much better than could have been expected.

There was very little headache, but a lancinating pain in the left hypogastric region, was greatly accelerated by coughing, and there was more or less tendency to cough during the first week.

I might state here parenthetically, that, in my

judgment, the trouble in the side had no connection with the condition of the mouth, throat and stomach; but, on the contrary, was entirely and wholly independent of it.

The history given of the case showed the last named trouble to have been produced some five years ago by prolonged arduous labor in which the abdominal muscles were in a constant strain for hours. Since which time the trouble has returned at different periods; and almost invariably following protracted, or great straining of the muscles in that region. The treatment given was palliative.

The odor coming from the mouth of the patient was offensive from the first, and continued to grow more and more offensive until after the expulsion of the membrane.

The kidneys performed their work admirably well. The stools which followed the enemata of warm water were rather soft and of a greenish color.

There were no hallucinations, no delirium; and for the most part sleep was good.

To prevent septicemia, to assist nature in the work of reconstruction, as well as to counteract any miasmatic influence that might be present the following preparation was given:

℞ Quiniæ sulphatis. . . . . ʒii
Acidi sulphurici aconi. . . . . cc. v
Aquæ camphoræ
Aquæ distillatæ ää . . . . . ʒii

M. Sig. dose, one dessertspoonful every two hours, being alternated by half drachm doses of peroxid of hydrogen 40 per cent. solution given in a third of a glass of water.

Gradually, but slowly, the condition of the patient grew better, with the exception of one day, at which time he had no peroxid of hydogen. The other medicine "would not work without the gargle," as he expressed it; but worked well together."

Immediately after resuming the use of peroxid of hydrogen he began to feel better. Saw him April 9. Found him in good condition. Pulse and temperature normal. Expressed himself as feeling very well.

He had been sitting up most of the time for several days. I recommended that the treatment should be continued for some time.

A week later his wife called at my office stating that she thought he was doing very well. Since which time I have had no official report from the case.

My candid opinion is, that of all the agents used, the one to which he owes the preservation of his life during the first seven days of the attack is peroxid of hydrogen.

Case 3.—Bennie, little boy, aged 9 years, orphan, German, was brought to my office May 20. Had diarrhea which had become chronic. Also had intermittent fever—mild form. He was very much reduced in flesh and emaciated.

Various and numerous agents from the list of ordinary remedies were used during the four succeeding days; but the diarrhea was growing worse rather than better. The stools became very numerous, the actions amounting to ten or twelve at night with as many more during the day. The malarial fever received appropriate treatment and was readily subdued.

May 26 I planned a new treatment. The patient was thoroughly sponged from head to foot once a day with tepid alkalin water. The bowel was washed out *clean* morning and evening with soap-water, just warm enough to be comfortable to the patient. After the bowel was washed out, 2 ounces of starch water containing 10 drachms of glycozone was thrown into the rectum and left to be absorbed. The internal treatment consisted of a milk diet, fresh water to drink impregnated with hydrozone, and dessertspoonful doses of glycozone taken every two hours during the day in a wine glass full of fresh water.

Improvement began with this treatment. The skin and bowel were kept thoroughly cleansed every day as well as medicated. the bowel being irrigated twice each day. June 4, the child was reported well. His general health is rapidly improving.

Good or bad, this treatment is purely original with me.

What effected the cure? My answer is this:

1. Removing the cause. This was done by abstinence from all solid food. Aliment was restricted to small quantities of pure fresh milk, beef, and chicken soups, given at regular periods.

2. By cleansing the affected parts, as before stated.

3. By healing the wound. This was done by the use of glycozone which I have found to be one of the most reliable and rapidly healing agents that I have yet used. The hydrozone was used as a disinfecting agent.

May we not reasonably expect that during the remainder of the present decade, and for all time to come, internal as well as external cleanliness shall be to suffering humanity a boon—an heavenly unction.

NEW AND IMPORTANT PHARMACEUTICAL PRODUCT.

THE GLYCERO-ACID PHOSPHATE—A BRAIN AND NERVE TISSUE CHEMICAL FOOD.

BY EDWARD C. MANN, M.D.

NEW YORK.

Member Medical Society of the County of New York; Member Brooklyn Pathological Society; Honorary Member Medical Section Imperial University of Kharkof, Russia; Medical Superintendent Sunnyside Private Hospital for Diseases of the Nervous System and Mind, Inebriety and the Opium Habit.

Preventive medicine or the prevention of disease is the highest art of the physician. The prevention of nervous and mental disease in the nineteenth century, which requires of professional and business men such an enormous expenditure of nervous force, is to be accomplished only by the most careful attention to the due nutrition, stimulation and repose of the brain. A study of the physiology of the nervous system teaches us that nervous force is generated in or by the vesicular neurine and that the tubular or fibrous neurine conducts it. The normal activity of the vesicular neurine of the brain is the occasion of all our mental capabilities and powers. The little cells in the cortex of the cerebrum and cerebellum are composed of lecithin, from the Greek word, *Lekithos*, a nitrogenous fatty substance to which the formula C_{44} H_{90} NPO_9 has been given. It is practically a phosphorized fat. There is a great deal of glycerin-phosphoric acid in its composition. Nervous and mental health depend upon the conditions of the exhaustion and reparation of the nerve substance of the brian being maintained in a healthy and regular state. Nervous prostration or neurasthenia and mental disease result from the interruption or disturbance of these conditions. If nerve waste exceeds nerve repair, nervous and mental disease result from the interruption or perversion of nerve function. The conditions of civilization in the nineteenth century are such that there is a brain stimulation so excessive as in many cases to hasten the progress of brain decay and waste beyond the powers of reparation. The fundamental truth of physiology is the activity of the cell, and this activity being accompanied by its decay and demanding its renovation. The chemico-physiologic points of importance in the relative position of the brain cell are: Its relation to the nerve fiber, from which it receives and to which it conveys impressions, the taking and giving of which are the main cause of its exhaustion; and 2, its relation to the blood capillary, which exudes a plasma in which the cell is bathed and renovated, and from which new cells are formed to replace those which are finally exhausted. The only force capable of explaining any of the phenomena of life

is the chemic one and this only in a state of constant activity and change. Disease consists in a perversion of the functions of the structures of the body and if we expect healthy nervous and mental function we must furnish the proper chemic nerve cell and nerve tissue food, and this is the true physiologic antagonist to nervous and mental disease. It is with this purpose that I present to the medical profession the new brain and nerve tissue chemic food which I term the glycero-acid phosphates. Its formula is almost identical with that of the lecithin of the brain cell and nerve tissue. Its therapeutic use is indicated in health by brain workers and in the educational period of youth where, if we are not very careful, brain waste exceeds brain repair, as a preventive of nervous and mental disease. Its therapeutic use is indicated in disease, whenever the patient complains of being unable to do what he could either mentally or physically when in health; when there is mental depression, neuralgia, loss of energy, lassitude and insomnia and in all cases of neurasthenia. I consider this preparation the most important adjuvant I have at my command in my private hospital in the treatment of nervous and mental diseases, in the treatment of inebriety and in the treatment of the morphin habit. If we do not feed the nerves, if we do not cause the brain cell to be bathed in a healthy blood plasma containing the proper materials for nutrition, we shall not cure the patient. In all cases this chemic food will be found to act on the nutrition of the centric nervous system which it tends to preserve in its organic integrity by building up the exhausted nervous system and having a special stimulating power which is a permanent and not an evanescent one. Patients taking it improve in personal appearance and in weight, and the mental irritability of overworked business and professional men and of nervous hysterical women, decreases in intensity and finally disappears, and a permanent cure will be obtained, to the satisfaction of the physician and of the patient.

A sample for physicians use will be sent upon application to the author, at 801 Madison Ave., New York.

CONSTIPATION AND DEFECATION.

BY JOHN ASHBURTON CUTTER, M.D.
NEW YORK.

As some members complain of being written at over their heads, perhaps a few practical points as to the above may not be out of order.

Constipation is largely due to lack of nerve force; this lack may be caused by many things and it is the physician's business to find out what the leaks in the patient's economy may be. One man eats impoverished food; another works too hard; another is always troubled by his affairs; another may have some chronic disease sapping his vitality; in women pelvic disease takes away nerve force and causes constipation; habits of life are also to be blamed if they cause constipation; nature's calls can not be neglected with impunity, for if so, nature soon forgets how to do her regular work; want of exercise causes constipation, yet those leading sedentary lives who pursue a healthy course of feeding are not constipated. Indeed in studying constipation one has to make a most thorough examination of his patient often, by physical exploration, the use of instruments of precision like the microscope, and the use of chemistry in the study of fluids; find out what the trouble is in the body, remedy that and the constipation will cease in time.

One summer I had three cases of constipation; two were men suffering from neurasthenia characterized by protoplasmic colloid discharges in urine, one case appearing like a man in the third stage of consumption; he was also a large user of sulfonal; his course of treatment was over two years, but has been cured; the third case was a woman who had chronic rheumatism; these cases led me a merry dance because what would help one would not relieve another, and for that matter no medicine helped any of them long; the causes of defective secretion and lack of muscular power in intestines were due to lack of nerve force.

As to treatment; fruits, sweets, molasses and so forth apparently cure constipation and are largely used; their effects are produced by fermentation and nature's efforts to get rid of the ferments; this action is really a diarrhea; give such cases lean meat and they become temporarily constipated; but feed them lean meats, and wheat preparations made of the whole wheat thereby retaining the gluten and using with such a dietary but few other articles of food, (for these neurasthenic cases must not have their digestive systems overwhelmed with too many foods to digest); feed them thus simply, giving them California prunes without sugar and such medication as may be indicated and the constipation will be cured in time and the patients will do better on a lean meat diet with whole wheat preparations and few other foods than ever before, because the feeding of such produces more nerve force; I say nothing about any other disease present or methods of life which must be treated; what I wish to emphasize here is to so feed that there will be the minimum of expense of nerve force in digestion and maximum of nourishment.

I believe the inordinate use of fruits bad, because they tend to acid fermentations and have not the chemic elements in abundance to amply nourish the body.

Medicines as Adjuvants.—The standard pill of aloin, belladonna, nux vomica and podophyllin is a good assistant; fluid extracts of boneset, dandelion and cascara sagrada are fine tonics for the bowels and stimulants of the secretions. Exsiccated or chemically pure sulphate of soda in water is the best form I know of to administer salts; this salt and in this form is a finely powdered, beautifully white substance that has very little of the disagreeable taste of the sulphate of magnesia; one case that I had to treat of fibrous structure of the sigmoid flexure of colon, to whom I was giving under the skin from 1 to 2 grains of morphin daily, would have a fine movement by the use of this form of the salt.

I have used this preparation in many other cases and patients always express satisfaction when it is exhibited as not being unpleasant.

Glycerin by the bowel, either free or by Parke, Davis & Co's suppositories is a good adjuvant; some cases need a thorough flushing of the colon by enemas; a gentleman in this city has made a small fortune by the sale of his pamphlet on this subject claiming that it should be used very often; it is said that the Egyptians followed the same practice and that there are carvings on their pyramids to show such practice. But constant flushing of the colon is

also a dangerous thing; the putting of two to four quarts of water into the colon will not only clean out the big bowel but it will syphon or suck out of the small bowel the nutritive forms of food that are about to be absorbed and greatly prostrate a patient; I have seen the same thing in consumption of the bowels; if the patient could hold his bowels closed for two days he would get along well, but large daily movements prostrated him.

Beef tea and beef extracts, if largely used, will produce painless movements of the bowels; there are some beef extracts that should never be given; I will not animadvert against any now, but say that the fluid Bovril, as imported by Bovril, Ld., and as yet little known to the American profession, should be thoroughly tested.

Many cases of constipation do not drink enough water, whether hot or cold; there is not enough fluid in the body for the normal secretions and eliminative fluids in such; this condition should be remedied.

The injection of oil into bowels to soften hard fecal masses is not a new idea but one that is used altogether too little; to have a patient suffer for hours after passing a hard fecal mass is useless; *painless defecation* should be obtained by this use of sweet oil; it sometimes will stay in the bowels over night, gradually softening the hardened fecal concretions; movements will come in the morning with or without further assistance from drugs or chemicals according to the case.

In closing; let the physician find out in cases of constipation the leaks of nerve force; stop those leaks; feed plainly; use drugs as indicated *and procure painless defecation.*

Heartrest Sanatory, New York, June 26, 1894.

SOCIETY PROCEEDINGS.

German Chirurgical Society.

Twenty-third Congress, held in Berlin, April 18–21, 1894.

FIRST DAY—AFTERNOON SESSION.

The President v. ESMARCH, presiding.

HABS, of Madgeburg. On eighteen cases of exarticulation of knee joint with demonstration of persons operated. Ten years ago Volkmann had uttered some objections against the proceeding of Prof. Hagedorn, of Madgeburg, who in the exarticulation of knee joint formed a square cut forward of the joint, enclosing the patella. He showed that the objections of Volkmann had no cause. The stump answers all uses for cosmetic and functional purposes. It is round and large in its surface upon which the leg leans. The scar is removed backward into the hollow of the leg, to avoid its being rubbed by the prothesis. The patella has shifted upward on account of shrivelling of the quadriceps muscle. A girl operated upon in this manner, fourteen years ago, told that she was wont to dance with her stump, half-nights long, without omitting any hours. A man could bear bags of two hundred weight, using no more help but a stick to give direction in marching. As for breadth and length the femur has somewhat reluctantly grown, being shorter for two to four centimeters than the sound bone. The stump will only bear its burdens and remain unaltered provided the marrow of the bone is closed up by compact bone-tissue.

KUSTER, of Marburg. A case of rhinoplastic cut of the skin of the arm, with demonstration of the patient. Patient, a girl, was suffering with lupus of the nose in its lower part. The tissue was cut out into the sound skin and a patch formed out of the skin of the left arm, which was placed upon the defect. The patch was not transported bleeding (after the manner of Grafe) but in the stage of granulation. To prevent its getting dry it was placed between two linen shreds with bor. vaselin upon them and not cut through earlier than six days. The septum and side parts of the nose (also nares) were attained by incisions afterward so that the cosmetic result is satisfying now and will remain so, return of lupus and shrivelling of the patch excepted. This proceeding is best, especially to form the point of the nose, when we are bound to save the skin of the face.

SCHMIDT, of Stettin, has operated in the same manner in a case of much larger lupus of the nose and arrived at a pretty good cosmetic result, the cure having taken eleven weeks. However, a little shrivelling is to be remarked already.

v. BARDELEBEN, of Berlin, is of opinion that in using this method shrinking of the transplanted skin is ever to be feared, even when the graft is doubled. For total rhinoplastic, König's method (with transplantation of skin from the forehead) is to be preferred, the skin of the arm being profitable only for partial rhinoplastic.

KRAUSE, of Altona, has made use of the Vagliacorro method in one case of lupus to save the skin of the face. Good results.

HEIDENHAIN, of Griefswald. On resection of foot with dorsal cut. (With demonstration.) In 1886 Bardenhuer published a method of resection of foot, forming a skin cover of the dorsum and going through all the layer of soft parts. In seventeen cases of his, the tendons were not sutured after operation, and yet function was good, and immobility of the toes satisfying. He has imitated this proceeding in eight cases with the same good results.

RYDYGIER, of Krakau, adds that this method originated from Küster some years ago; the incision across the joint he had placed formerly higher than lower. He has often made use of this proceeding with good results, not only in bad cases.

BRUNS, of Tübringer, has made this operation several times and nailed the calcaneus to the tibia. Which form of incision is adopted is no matter. If incisions are made the length of the joint as usual, a T-cut may be added, either in front or back of the primary cut.

v. FÖGE, of Manteuffel, prefers the incisions by the length, by which the joint becomes anatomically accessible without hurting arteries or tendons. If the joint is then luxated, perfect insight is possible.

BARDENHUER, of Köhn, has made the forward cross-cut very often and with good results, even in cases of widespread tuberculosis. The incision passes upward to the tibia, downward to the tarsus.

HEIDENHAIN said that in using Küster's incision, which was higher up, the tendons should be sutured afterward.

PETERSEN, of Kiel. On the treatment of Colles fracture. He recommends in the typical fracture of the radius, after reposition of the fragments to maintain the hand toward the ulna and in flexion to the palm. The bones grow thus together in an excellent position. The case presented was that of a physician of Kiel.

v. ESMARCH could support the remarks of Petersen in all respects. The method is used also by him.

v. BARDELEBEN said this was the twenty-first proceeding in Colles fracture, and he would use it no more than his twenty predecessors, when the patient was unintelligent, and when the broken bones were not in good position beforehand.

LAUENSTEIN, of Hamburg. Notes for the treatment of

inward rotation in cases of pes-equino-varus congenitus. He recommends a machine constructed by him, whose principle is that the foot with its long axis is fixed to a staff, and thereby leaning upon the back parts of this staff and by its own weight, together with that of the whole leg, is forced to an outward rotation. The machine is apt for those children who can not yet walk, or for the after treatment of somewhat older children. It can also be used for the slow correction of pathologic inward rotation of legs.

SECOND DAY—AFTERNOON SESSION.

KUSTER, of Marburg. Introductory notes on early operation of osteo-myelitis. By osteomyelitis we take a purulent and non-purulent inflammation of bone tissue, which concerns not only the marrow, (but in the beginning of the disease seldom otherwise but also the periosteum and cortical substance of the bones. Symptoms are therefore different, although Carl Müller, of Halle, has stated for all cases the staphylococcus pyogenus as causating bacterium, which Küster approves. Jordan found that the bacteria intruded to the system by the respiratory and digestive tract, as well as by open wounds, which was afterward granted by Garre and Schimmelbusch. However, the latter experimenters by rubbing the staphylococcus upon the skin could only generate furunculosis and in correspondence with this fact, in children furunculosis is very often the preceding symptom to osteomyelitis. Osteomyelitis may also be established by scratching, which is proved by the fact that it occurs oftener in the poorer classes where bathing is not so frequent. Prophylaxis could, therefore, do much in this direction. When osteomyelitis is present, the suppuration should be cut off by bloody intervention, to remove the necrotic bones. Küster restricts himself upon the first operation, and having performed an early operation in twenty-seven cases, comes to the result that we should make the operation as early as possible for preservation of life. It was equal to herniotomy and tracheotomy. As for diagnosis, when we look only on the osteomyelitis of long, marrowed bones, there scarcely is a combination or sequel of symptoms so typical. Characteristics of the disease are: Appearance in early age before the growth of bones has come to a closing; high temperatures; aching, following pressure in certain places, as in hollow of leg, etc. Of the twenty-seven cases, fourteen were operated upon during the first two weeks. No deaths. Of three operated on the third week, there were two deaths. In the fourth and fifth week, results are again more favorable.

The operation consists in an incision in cases of deeply situated abscesses, and eventually chiseling up of bones which can be made in an osteoplastic manner (Lücke), although necrosis must be expected in the latter case.

KAREWSKI, of Berlin. On abortive treatment of osteomyelitis by operation, in the ambulatory of the Jewish Hospital, as well as in his private *clientelé*, Karewski has a very ample material of osteomyelitis, among which, however, early cases are exceptions. Karewski has made early operation in fourteen cases; operated during the first ten days of the disease, and were without grave symptoms of generalized septic infection—which cuts short every hope of success and where the local symptoms showed either none or very insignificant suppuration. Only in such cases are we permitted to speak of early operation. Widespreading suppuration, necrosis, inward metastasis bring always danger to life and to the limb contracted. We should look in our therapeutics to discern acute osteomyelitis in its first beginning, when the first symptoms of inflammation present themselves. Fever, disturbance of function, swelling of the limb and aching bones. The diagnosis is not so very difficult, if we remember that in children other diseases with the same symptoms are very rare.

Of the fourteen cases, six were operated before any suppuration could be found. The periosteum showed hyperemia and an edematous complexion. On the bone there was here and there to be found a fistula, thin like a hair, with some drops of pus coming out; the marrow flowed forth from its channel when this was opened, showed a reddish-blue hyperemia and speckled with fine points of pus. In other cases an abscess under the periosteum had developed itself, and the alterations of the marrow were more distinct.

Of the first cases three were on their third to fourth day, as could be seen; three on the fourth to seventh day; the rest on the seventh to tenth day. Of the first cases none had other heads of suppuration; of the rest, six cases either co-existing with the first remarkably, or presenting itself later on. The reckoning was made by the day of a trauma which had gone before, or by the day when the first symptoms were noticed. Karewski has always chiseled up the bone its whole length and totally removed the diseased marrow. The operation is not dangerous and is borne well by the youngest children, provided it is made with care against profuse hemorrhage. These fourteen cases all recovered in about six months without necrosis or fistula remaining. No disturbance of growth or relapses. Some of the younger children died later by other diseases. There were presented a boy operated on eight years ago; a girl two years ago; a boy operated eight weeks ago, in health now for four weeks; a man 50 years of age, operated upon for influenza-osteomyelitis who afterward died of septicemia already developed. Karewski is of opinion that the early operation of osteomyelitis may duly be called an abortive treatment of this disease.

In the discussion of these papers, NOLL, of Hanau, protects his countryman against Küster's objection, that osteomyelitis is caused among them by uncleanliness. During 1878–90 he has not observed a single case, although practicing in the same region with Küster. Since 1890 till now, six cases in undoubtedly cleanly families. In this period not only manufactories of soap have been established at Hanau, but also public baths and school bathing rooms have been opened.

SCHUCHARDT, of Stettin, has in all cases of osteomyelitis done no more than open abscesses, and as early and amply as possible. He has neither trephined or chiseled up the bones, and most of his cases, even multilocular ones, have recovered without necrosis and fistula coming on. The opening of the marrow-channel of bone is to be reserved only for the gravest cases.

v. BERGMANN asks somewhat ironically whether Mr. Schuchardt saw necrosis at all in his cases. He replied: "None in those early operated upon." Thereupon v. Bergmann: "I presume necrosis will not fail to show itself in Stettin."

KORTE saw twenty-two cases of osteomyelitis in his hospital during three and one-half years. They were all grave cases and operated immediately, *i. e.*, the bones were opened and the suppurating marrow removed. Two cases died before the operation and six after. The rest recovered readily without any suppuration. Fever remained very often for some days after the operation, but the bone aching ceased at once. Large necrosis was never observed. Korte thinks osteomyelitis a severe generalized disease, occupying the whole body. Nevertheless he recommends opening of the bone to facilitate drainage of pus.

SCHEDE, of Hamburg, would, after his more early observations, (forty cases) come near in his opinion to Küster's, but on account of his later experience approves Korte's idea, that our help avails nothing in grave cases of osteomyelitis. He has treated 153 cases in 11 years. The femur was engaged in forty-six; the tibia in fifty-four; the humerus in ten; the forearm in three; the pelvis in twelve; the lower mandible in eleven cases; the rest in the short bones. Two classes of the disease are to be distinguished: One always fatal with the symptoms of generalized septicemia; the other more local but with so turbulent signs that decision is at once set on the knife's point. Falling of temperature does not, however, follow an extensive trephining of bone. After a fever lasting for weeks and months, the patient may die of pyemia. Of his 155 cases, 33, *i. e.*, 20 per cent. have died.

The most unfavorable of all is the osteomyelitis of the lower mandibles, which often follows extraction of teeth; and osteomyelitis of the pelvis.

LINDNER, of Berlin, is also of the opinion that osteomyelitis is a part of a general infection with varying malignity in different countries, but mostly in the regions around the Baltic. He could never prevent necrosis by operation.

NASSE, of Berlin, gives the statistics of the last eleven years concerning osteomyelitis in the clinic of Prof. v. Bergmann. Those cases are omitted which recovered after simple incision, or where after trephining no significant signs of alteration in the marrow could be distinguished. For these cases were doubtful. Thirty-seven cases were operated upon during the first three weeks of the disease. Of these thirty had osteomyelitis of a *single* bone, of which eighteen were trephined at once; several recovered without necrosis. In four cases multiple osteomyelitis set in, which in all probability in two cases had made its entrance before the first operation. One of these four succumbed. In the remaining eight, necrosis offered itself, but the disease remained localized. There had been made an incision outside of the clinic in two cases; recovery in one of them without necrosis. Ten cases were treated only with incision

without instantaneous trephining; two deaths. The rest had necrosis which were in general larger than in those trephined. Results were much more unfavorable in those which were brought into the clinic with multiple heads already. Of seven of these, four died of pyemia or sepsis. Those operated upon in the first week showed less favorable results than those operated upon later on. He could not, however, judge therefore that early operation was at fault. It only showed that the gravest cases were brought to clinic early. Nasse then runs briefly over those cases recovered without necrosis. Part of them were benign and of a more subacute course, but it was striking that of multiple cases, immediate trephining of secondary heads very often had had a full success. In the multiple cases which had recovered, secondary heads in larger bones were observed seven times. No necrosis in four of them. These results advocate an early operation and we could thus prevent necrosis sometimes.

In many cases the spreading of the disease had been prevented after necrosis of the primarily diseased bone had been cut short. But where osteomyelitis was multiple from the beginning, it was clear that operation would come short of this effect. Nasse laid some stress upon the age of the patients. Of ten patients under 5 years of age there were five deaths; of twenty-seven over 5 years, there were only two deaths.

SONNENBURG, of Berlin, is of the same opinion, as for the general character of the disease, as Schede and Korte. In osteomyelitis the same bacilli are found as in sepsis, viz: Staphylococcus pyogenus albus, and streptococcus. He should decide separately for each case, whether operation should be done or not. In one case a simple incision will do; in another the most extensive measures will be bootless. The cases here demonstrated as cured by early operation are cases belonging to benign osteomyelitis.

(To be continued.)

Medical Society District of Columbia. Report on Typhoid Fever.

[*Concluded from page 126.*]

In Dantzig, with a wretched system of privies, there were 10 deaths to 10,000 inhabitants. The introduction of an abundant water supply in 1869 produced no effect on the death rate. The city was sewered in 1872. In the following twelve years the average mortality was 2.4 and in the last five years was only 1.5. In Breslau in 1866, without sewers, the mortality was 15.2; in 1876, with sewers, it dropped to 5.5 to 10,000 inhabitants. In the cities of England, before any extensive sewerage systems were introduced, from 1850 to 1871, the mortality was 9.0; from 1876 to 1884, it was 3.6, the change following upon a general introduction of sewer drainage.

Brooklyn and New York have the best sewerage systems in this country. New York has 300 miles of sewers, but Brooklyn is perhaps the best sewered large city. New York has a mortality of 3.0 and Brooklyn 1.5. The mortality of Brooklyn, our best sewered city, is lower than Munich, Berlin, Hamburg, London, Vienna, which are the best sewered cities of Europe. And when a city is said to be sewered this means that water closets are substituted for privies, and the soil is kept free from contamination.

To turn now to other cities in this country, Baltimore, as Osler in his excellent report says, "has practically only surface sewerage. . . . The excreta pass, for the most part, into privy pits, of which it has been estimated there are from 70,000 to 80,000, occupying one-twentieth of the entire surface of the city, exclusive of streets and parks." Leakage, he says, unquestionably occurs in a very large number, with saturation of the ground in the vicinity. Baltimore has a mortality of 4.8, more than three times that of Brooklyn.

Washington, whose sewerage system is very good in most respects, but with fatal defects which diminish its efficiency and with that equally great danger from soil pollution from its 9,000 privies, has an average annual mortality of 6.2 in the last thirteen years. This is four times the death rate of Brooklyn, twice that of New York and the same as that of Philadelphia.

The daily pollution of the soil by the fecal discharges of our patients suffering from typhoid fever, with the resulting contamination of well water, must be recognized as the chief source of the diffusion of the disease. It is a case of autoinfection. We are daily breeding the poison which poisons us, and the inevitable round from intestine to soil, from soil to well and from well back to intestine, goes on and on with most tragic uniformity. We sustain all the conditions favorable to rapid and perfect propagation of the bacilli. Granches and Deschamps have experimentally shown that typhoid germs placed on the surface of frequently moistened ground will penetrate nearly two feet into the soil, and will there retain life for five and a half months. They multiply rapidly in illy drained soil, live for an indefinite time in privy vaults, and have a much longer existence in cisterns and wells than in running water.

In Washington we supply all these necessary conditions—leaking privies for the reception of excreta and their contained germs, a damp and illy drained soil for their reception and rapid growth, neighboring wells for the resulting—the inevitably resulting—contamination of drinking water consumed by a thirsty population. What more conveniences can we supply? What more successful means can we adopt to raise our mortality to a point higher than that of Brooklyn, New York, Baltimore and Boston? We are among the most successful cultivators of the deadly bacillary plant in this country.

RECOMMENDATIONS.

The committee would urge upon the Medical Society the importance of taking the initiative in the effort to control the spread of this destructive but preventable disease, by urging upon our municipal government and upon Congress the prompt adoption of measures to remove the causes to which this report has drawn attention.

The measures to be recommended are:

1. The immediate abandonment of all wells within the city limits, exception only to be made in case of the absence of the Potomac supply, and where the wells, after repeated chemic and bacteriologic examinations, have been found to be free from all possible sources of danger. But even these to be abandoned as rapidly as possible.

2. Purification of the sewerage system already existing, by replacing as rapidly as possible all damaged or defective drains.

3. The introduction of new sewers in advance of other improvements in parts of the city not now supplied with drainage, and the extension of the system as far outside of the city limits as the rapidly growing population demands, so as to prevent soil contamination.

4. The adoption of some system by which the lower sections of the city can be more completely drained, and the risks arising from the backing up of tide water and sewage prevented.

5. The final and safe disposal of the sewage.

6. The early completion of the plans recommended by Col. Elliott, in charge of the Washington aqueduct, and now in course of execution, which have in view the sedimentation of the Potomac water, and ultimately the completion of works for filtration, the only proper method of purification.

7. The suppression of all privies and the enforcing of the law to make sewer connections.

8. Careful inspection of all dairies in the District from which our milk supply is drawn, and the enactment of a law by which no milk shall be sold in the District without a permit from the health office. The inspection should cover an examination at the dairies of all possible sources of infection, including the water supply.

9. The urging upon the members of the profession of a careful collation of all facts bearing upon the mode of infection in each case, and the advantage of reporting such facts to the society, and the propagation of the doctrine that immediate disinfection of the stools is the first duty of the physician as guardian of the health of the community.

G. L. MAGRUDER,
W. W. JOHNSTON,
C. M. HAMMETT,
Committee.

TYPHOID STATISTICS.

The most striking chart exhibited in connection with the report was one which showed the number of deaths from typhoid fever to each 10,000 inhabitants in sewered and unsewered cities on an average during five years, 1880–1884. In cities with good sewers and general water supply the averages were as follows: Munich, 1.7; Dantzig, 1.5; Frankfort, 1.4; Breslau, 3.3; Hamburg, 2.6; Berlin, 2.9; Brussels, 3.3; London, 2.3; twenty-eight English cities, 3.2; New York, 3; Brooklyn, 1.5; Vienna, 2.1; Washington, 4.6; Washington (1885–90), 6.7. In cities without sewers or very imperfectly sewered the yearly averages for each 10,000 residents were as follows: Paris, 9.9; Marseilles, 12.8; Turin, 9.5; Naples, (1881–84), 7.1; Palermo (1881–84), 13.1; Catania, 19;

281 cities in Italy (1881–82), 9.5; St. Petersburg (1883–84), 9.9; Riga (1881–82), 15.8; Buda-Pesth (1877–81), 9.2; twenty German cities (1878–82), 9.8; New Orleans (water supply from cisterns above ground), 2.7; Baltimore (abundant water supply), 4.8; Cincinnati, 7.3.

BOOK NOTICES.

Clinical Medicine: A Manual for the use of Students and Junior Practitioners. By JUDSON S. BURY, M.D., Lond., F.R.C.P. Illustrated. Large 8vo. Cl., pp. 468. London: Chas. Griffin & Co. Philadelphia: J. B. Lippincott Company. Chicago: A. C. McClurg & Co. Price $6.50. 1894.

"The chief aim of this manual," says the author, "is to assist the student and junior practitioner in the examination of medical cases." The book is divided into twelve chapters, as follows: Chapter 1, Introduction; 2, Symptoms for the most part Subjective in Character; 3, Examination of the Surface of the Body; 4, Temperature; 5, Examination of the Skin and its Appendages; 6, Examination of the Respiratory System; 7, Examination of the Circulatory System; 8, The Blood; 9, Digestive System and Abdominal Organs; 10, Examination of the Urine; 11, Examination of Puncture Fluids; 12, Nervous System. There are numerous illustrations explanatory of the text. In Chapter 10 will be found a most interesting feature of the book. The various fluids are classified according to the official nomenclature as Exudations, Transudations and Cyst Contents. The Transudations are those formed without pre-existing inflammation, as a result of obstructed or altered circulation. The work is an excellent one.

Manhattan Eye and Ear Hospital Reports. No. 1. January, 1894.

The insignificant character of our hospital reports as a class, has long been a subject of lament among American physicians. A few of our hospitals have published reports of scientific value, such as the Boston City Hospital, the Johns Hopkins Hospital, the U. S. Marine Hospital Service, and the Pennsylvania Hospital, but the fact remains that as a class these reports have consisted of lists of officers, financial tables, lists of donations of miscellaneous articles from a cucumber to a knitted stocking.

These details belong rather to the quiet committee room than to the public, and however it may thrill the generous impulses of the good ladies on the committee to be told that Mrs. John Smith on such a day donated a cake, a watermelon, or a jar of pickles to the hospital larder, it is questionable whether the general public care much about it.

The report under consideration has a number of scientific papers of the highest interest and value. It is well edited and carefully printed.

Inebriety or Narcomania; Its Etiology, Pathology, Treatment and Jurisprudence. By NORMAN KERR, M.D., F.L.S. Third Edition. 8vo. Cl., pp. 780. Price $2.15. London: H. K. Lewis. 1894.

The second edition of this well known work appeared in 1889, and in the interval between the appearance of these editions public opinion has come to concede the strength of the position assumed by the author in the first edition, "that inebriety is a disease, as curable as most other diseases, calling for medical, mental and moral treatment."

The present edition is larger and more complete than former editions and contains much added matter, a study of etheromania, and eighteen other new chapters. It concludes with a chapter, "Drunk or Dying," in which it is clearly set forth to be the duty of the police, in cases where a man is found dead drunk to take the victim to the hospital rather than the station house—a position frequently taken in this JOURNAL. (See an editorial, March 3, 1894.)

The author predicts that the "inebriety center" will yet be discovered. The work is one of great interest and should be possessed by all interested in the subject, as a standard treatise.

Human Physiology. By JOHN THORNTON, M.A., with two hundred and sixty-eight illustrations, some of which are colored. Pp. 436. Crown 8vo. New York: Longmans, Green & Co. 1894. Price $1.50.

The biologic phase which medicine entered into some twenty years ago is now bearing fruit in the more exact knowledge of the operations of the body. Some of the older works on physiology read like romances and were embellished with many literary graces, but the modern physiologist has so many facts at his disposal all of which must be prosaically catalogued, that no space is left in his book for "fine writing."

The volume before us is very much condensed and the general topics of physiology brought fairly up to date. A little more elaboration might make the book more readable, but as it is the "essentials" are all duly mentioned. We commend the book.

The Graphic History of the Fair; containing a sketch of International Expositions, a Review of the Events leading to the Discovery of America and a History of the World's Columbian Exposition held in the city of Chicago, State of Illinois, May 1 to Oct. 31, 1893. With nearly one thousand illustrations. Imperial, 4vo. Cloth. Chicago: The Graphic Company. 1894.

This book is a pleasant reminder of the great World's Fair which closed all too soon for those who were frequent visitors. This marvelous creation of the brain and sinew of the world seemed to increase the fascination of the spectator at each successive visit, and the Graphic history with pen and pencil and photography, makes it possible to visit in spirit the great White City on the lake, now, alas! only a reminiscence. The doctor's table in his waiting room, could have few more attractive books upon it than the volume under consideration.

On Double Consciousness. By ALFRED BINET. Chicago: The Open Court Publishing Co. Paper, pp. 93. Price 15c. 1894.

This monograph consists of nine chapters: 1, Experimental Psychology in France; 2, Proof of Double Consciousness in Hysterical Individuals; 3, The Relations between the Two Consciousnesses of Hysterical Individuals; 4, The Hysterical Eye; 5, Mechanism or Subconsciousness; 6, The Graphic Method and Doubling of Consciousness; 7, The Intensity of Subconscious States; 8, The Rôle of Suggestion in Phenomena of Double Consciousness; 9, Double Consciousness in Health. These topics are treated with the judicial fairness, the deep knowledge and the skilled literary touch characteristic of Mr. Binet.

NECROLOGY.

BOLING A. POPE, A.M., M.D., a native of New Orleans, La., died at Dallas, Tex., July 3. Dr. Pope was a graduate of the University of Bonn in 1859; one of the leading oculists of the South, and formerly a professor in the College of Physicians and Surgeons, New York. He was 69 years of age.——Sol. Etten, M.D., Port Jervis, N. J., July 7, aged 65. He was surgeon of the 124th N.J. Regiment during the war.——D. B. Woods, M.D., of Warren, Ohio, July 8.——George Warne, M.D., of Independence, Iowa, July 5. He was a member of the Iowa State Board of Health.——O.W. Berdan, M.D., of Cheboygan, Mich., July 8, aged 41.——C. A. Hentz, M.D., of Quincy, Fla.——Chas. Pemberton, M.D., of Asbury Park, N. J., July 13.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.
Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JULY 28, 1894.

INFANT FEEDING IN HOT WEATHER.

The first thing to be secured, in feeding a baby during hot weather, is to keep the little animal comfortably cool, in order to aid the processes of oxidation that are retarded by excessive heat. But there is the difficulty. In the spacious mansions of the rich, much comfort can be secured by opening the house at an early hour of the morning, and then closing it up for the day, imprisoning the cool night air for daily consumption. The introduction of the electric fan is a blessed boon to invalids and sick babies, quite equalling the punkahs with which oriental magnates render tolerable the air of their houses. But in the narrow quarters of the poor, such luxuries are out of the question. The baby must be either stripped entirely naked, or be clothed in a thin gauze or woolen stuff, and laid upon a rug in the largest and coolest apartment or corner of the tenement, and the mother or nurse must be instructed to give sponge baths often enough to render the child comfortable. If the lake-side or the sea-shore be accessible, great efforts should be made to secure a daily promenade by the water. Where ferry boats and excursion steamers exist, they may be utilized for the benefit of the broiling infants. If these advantages can not be secured, the little sufferer may be taught to swing in a hammock, and thus a little comfort may be obtained.

Having thus aided the child to procure fresh pure air with which to feed its red corpuscles, we must seek for a supply of pure water with which to replenish the fluids of the body. A discourse on filters and boilers for the purification of the family water supply is usually received with silent contempt, because such appliances are not within the reach of the poor. But with a little tact it is often possible to win the confidence of the mother so far as to inspire faith in the virtues of cold tea, or some other weak and harmless infusion that is made with boiling water, and drank after it has been cooled. In this way the tissues of the body may be irrigated with sterilized water without anybody but the doctor being wiser for the fact.

Now for the principal difficulty. Have we a healthy mother nursing her infant of less than a year—all goes well. But even in such case the doctor must see that the child is steadily gaining in weight. If during hot weather the nursling ceases to grow there must be at once a general investigation of the nursery. If the mother be hopelessly incriminated, a wet-nurse must be summoned to the rescue. But, if this be impossible we must set up a sterilizing battery, and prepare the best sterilized cow's milk that can be furnished. If, however, the health of the mother be found satisfactory, it will often suffice to add something to the diet of the baby. Every infant over six months of age, should be taught to drink milk from a cup; and as it approaches the end of the year, to eat crackers soaked in beef-tea, and delicate broths containing barley or rice. Malted milk, condensed milk, and various artificial foods are sometimes useful as the child advances in age and approaches the period of weaning. At this time an egg, or the white of an egg may be usefully given every day, either beaten up with milk, or served in clear broth. The child may be allowed to suck beefsteak, and to gnaw on chicken bones. Only by degrees should it be permitted to advance to a diet of vegetables and fruits, for every infant is at birth a carnivorous animal, and only after the lapse of many months do its digestive organs become adapted to the disposal of vegetable food. It is for this reason that so many infants of tender age succumb when compelled to take an artificial food that would be admirably nutritious at a later date.

The dietetic changes that are necessary in the treatment of disease are not to be considered in this connection. They must be studied together with the particular diseases that render them necessary.

ACROMEGALY.

It is a curious, though when we come to consider it, not a remarkable fact that almost every new disorder, as it is described from time to time, is all at once found to be rather frequent than otherwise. Attention once called to any special syndrome, and every one begins to recognize what had been overlooked or the importance of which had been underestimated before.

When in 1886, P. MARIE described the collection of symptoms that have come to be known as MARIE'S disease or acromegaly, it was thought to be a rare affection, but within six or seven years the number of reported cases is nearly or quite a hundred, and their number has been constantly increasing. We

meet readily recognizable cases on the streets in our large cities, and the prevalence and features of the condition have come to be discussed by the laity and have formed a theme for sensational articles in the daily press.

It is not to be understood that the disorder itself is actually a new one because its recognition has become more general. It may be becoming more frequent, like some other diseases, such as paretic dementia, for example; but it more probably is, like ectopic pregnancy, myxœdema, etc., only more watched for and recognized than was formerly the case.

In spite of the great number of observations up to the present, it can hardly be said that the true pathology of the disorder is any better known than when attention was first called to it and it was connected with alterations of the hypophysis. In the comparatively small number of autopsies that have been reported, alterations of the pituitary body have apparently been recognized in the majority, but the exceptions are too numerous to prove the rule. Alterations of the thyroid are also very general, and these can be detected during life. On the other hand we have exceptional cases, like those of VIRCHOW and SARBO, where no change was detected in either the pituitary body or the thyroid, so a recognizable abnormality of neither one of these, either by itself or in combination with that of the other, can be positively claimed as an essential feature of the disease. Moreover, the effects of isolated lesions of the thyroid body and of the pituitary body, as experimentally investigated by VASSALI and SACCHI, and clinically observed and reported by BOYCE and BEADLES and others, do not correspond with the prominent symptoms of this disorder.

Notwithstanding the above facts, the very general implication of the thyroid and the hypophysis in this disorder is exceedingly significant as to its pathology. The relations of these two glandular bodies to each other and to the nervous system, especially the sympathetic system, have been shown by HOFMEISTER, ROGOWITSCH and STIEDA, and the importance of the pituitary gland in the nutrition of the body has been confirmed by the recent experiments of VASSALI and SACCHI, and the biologic deductions of LLOYD ANDRIEZEN. When, therefore, we find these important organs, one or both, so generally associated with this disorder, the deduction is a natural and a valid one that their lesions have a part in its mechanism. The exceptional facts of cases where both were apparently intact only indicate that we are not yet at the bottom facts of these special cases nor of the general pathology of the disease. There are functional diseases of other organs without visible lesions, and the possibility of such in these cases must not be altogether ignored. That disease of these organs does not always produce the symptoms of acromegaly is not positive proof of anything, certainly not of their having nothing to do with it.

If we examine the various theories as to the pathogeny of this disorder we find them mainly unsatisfactory. That of KLEBS, that it is due to persistent thymus seems to have very little basis, and the same is true of that of VIRCHOW that it is a later degenerative phase of former (hereditary?) disease. To call it a neuratrophic disorder, as is done by some others, is doing little more than give a new name expressing our ignorance. It is superlatively a trophic disorder, involving as it does nearly every tissue in the body, and the suggestion of the influence of the nervous system is everywhere prominent. Its dependence on changes in peripheral vasomotor or sensory nerves, as held by certain authorities, is clearly as yet undemonstrated, nor is there anything more than a strong suspicion of any special part played by the sympathetic system in its production. It is worth remarking, considering the tendencies of modern pathologic ideas, how little has been said of a possible infectious origin, which is at least suggested by some of the symptoms observed in certain cases of acromegaly.

The most, perhaps, that we can say at the present time, is that acromegaly is a nutritional disorder or a combination of symptoms that is, in a majority of cases, associated with lesions (both hypertrophic and destructive) of the thyroid and pituitary bodies, two organs that seem to have a positive though not yet clearly defined influence upon systemic nutrition.

"RULES AND REGULATIONS" UPHELD.

Another illustration of the bias of courts in favor of legislation founded upon the police power of the community, to protect the public health by regulating medical education and medical practice, is furnished in the decision recently given by JUDGE WINDES of the Cook County Circuit Court in the case of The People, *ex rel.* McCandless, vs. the Illinois State Board of Health. The suit was referred to in the JOURNAL[1] during its trial, as the occasion for comment upon some defects in the practical execution of such legislation; and the points were then made that members of the faculties of medical colleges which confer degrees and issue diplomas should be debarred from membership on examining and licensing bodies, and that such bodies should ignore schools of practice by confining examinations to the fundamental branches common to all schools.

The case was a petition for a mandamus to compel the State Board of Health to issue to the petitioner a license to practice upon the diploma of a certain institution, and which license the Board had refused on the ground that the institution was not in good

[1] Schools of Practice. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 30, 1894.

standing as a medical college, and its diplomas were, therefore, not recognized by the Board as the basis for license. The petitioner set forth that the refusal of recognition was arbitrary, prejudiced and unjust, inasmuch as the President and other members of the Board which determined the standing of the institution were members of the faculties of rival medical colleges, and had, therefore, a personal bias; had made no study of the tenets of the school of practice to which the institution belongs and, consequently, were not competent to judge of and pronounce upon its "standing;" and that the Board had refused to give the faculty of the institution a timely, full and impartial hearing. Other pleas—against the constitutionality of the medical-practice act, against the exercise of judicial functions by the Board in pronouncing upon the "standing" of a medical college, and against the right of the Board to establish and enforce rules and regulations for the conduct of medical schools—were also set up; but these the Court swept aside as matters already adjudicated and subject to further review only by the Supreme Court, to which it was assumed the case would be carried in any event.

The Court seems to have had greater difficulty with the methods of the investigation upon the results of which the Board refused to recognize the institution as "in good standing."

"There is much evidence on this point, pro and con; but it is clearly established from the evidence that the principal part of the investigation was delegated by the Board to a committee of three, only two of whom took part in the investigation, though the third member of the committee signed the report which was made to a full meeting of the Board. This report it seems was mainly the basis of the action of the Board, and was concurred in by the whole Board, which, at the time of the adoption of the report, refused to hear the President of the college with respect to the standing of the college. It fails to appear from the evidence that the college, or the relator, at any time ever had a hearing before the full Board, or ever had any notice to appear before a meeting of the Board for the purpose of a hearing.

"Whether this college was in good standing was a question of fact which it was the duty of the Board to investigate, and the Court says this upon the basis that the Act which I have read is not in contravention of the Constitution. I say it was the duty of the Board to investigate, not by a formal trial, if you please, but on notice to the parties in interest, and before the whole Board. It could not be delegated to a committee."

Then, after further dealing with the constitutionality of that section of the statute which empowers the Board to determine for itself the "good standing" of a legally chartered medical institution, the decision proceeds:

"It therefore seems to the Court that this act does not violate the Constitution in the respect claimed by counsel, but that the Board has gone beyond its power in depriving the relator of a certificate to practice medicine, and in holding that the college is not in good standing, because the Board has proceeded without proper notice to the relator and the college, and made its decision without that full and fair hearing which justice and right, as well as the law, seem to require."

Nevertheless, the Court—obviously reluctant to break the chain of precedents in favor of the legislative control of medical education and practice—refuses to grant the writ of mandamus on the ground that the Board has the right to prescribe and enforce rules and regulations for the conduct of medical colleges; that in the exercise of this right it has prescribed a certain degree of preliminary education before entrance upon the study of medicine; and that, failing to furnish evidence of such preliminary education, the "relator has not shown a compliance with the rules of the Board, and has not, therefore, established a clear and undoubted right to the writ of mandamus, irrespective of the question as to the good standing of the college. The writ will, therefore, be denied."

Licensing and examining bodies intrusted with these important judicial functions can not be too punctilious in their observance of the forms and procedures of other judicial bodies; and especially is this binding upon boards whose membership embraces those against whom colorable charges of prejudice or self-interest may lie. But it is gratifying to be able to record the discretion with which a learned jurist, while reprobating laches in this regard, preserves intact the spirit and intent of the law and vitalizes its letter by such a decision as that under consideration.

CORRESPONDENCE.

The Status of an Eclectic.

To the Editor:—In a recent number of the JOURNAL (July 14, 1894), a gentleman from Texas asks if a graduate from an eclectic college may be properly elected to membership in a local society affiliated with the AMERICAN MEDICAL ASSOCIATION.

There is nothing either in the Code or the Constitution and By-laws that prohibits such membership. In some, at least, of the subordinate societies, graduates from eclectic schools have been received. Indeed, men who have not received a medical diploma have been honored with offices in local medical societies in affiliation with the AMERICAN MEDICAL ASSOCIATION. It is undoubtedly true that some of these non-graduates, and many of those who have graduated from homeopathic and eclectic institutions, are more worthy of fellowship and membership in medical societies than some graduates of our best schools.

In Art. IV., Sec. 1, of the Code, we read: . . . . "No intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by this ASSOCIATION, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship," etc. In the next sentence we have a definition by exclusion of the meaning of the word, "regular."

A common sense interpretation of this section and of other portions of the Code, would indicate that ours, being a *liberal* profession, should deal with such subjects in the

broadest possible manner. He who sanctimoniously draws his cloak around himself as he meets a conscientious and respectable practitioner who did not chance to graduate from the University of Pennsylvania, is certainly no honor to our guild.

It has been my pleasure to be personally acquainted with several good physicians who graduated, by accident, from homeopathic schools. Their practice is not based upon an exclusive dogma. They do make use of the facts even of bacteriology so far as known to them. I should consider myself less honorable should I refuse such men fellowship because in their ignorance they went to a sectarian school.

As I wrote in my article on homeopathy (JOURNAL AMERICAN MEDICAL ASSOCIATION, March 17, 1894): "The obliteration of the homeopathic sect is not secured by ignoring its members. . . . . If homeopathy is a delusion, rational medicine will lose nothing by association with homeopaths, while the latter class may thereby be better able to see the truth as it is."

In practice there is nothing to separate the majority of homeopaths from regular physicians. So far as I can find there is absolutely nothing to distinguish the modern eclectic. When cant is thrown aside there is little left for "schools" of medicine to thrive upon.

The exact qualifications for membership are by the law of the ASSOCIATION left largely to the local societies. These regulations vary greatly, and I regret to say they do sometimes exclude all as unworthy, who have not been "baptized" in a particular manner.

On the other hand, he who advertises himself as a sectarian thereby shuts himself out from recognition by a liberal profession. He who decrys the profession and extols his own practice to the exclusion of the information to be received from the science of medicine, is not to be encouraged.

HENRY BIXBY HEMENWAY, M.D.

Value of a Lost Eye.

KNOB VIEW, CRAWFORD CO., MO., July, 1894.

To the Editor:—Would you give me your opinion on the following questions:

1. Is ophthalmia ever the result or effect of malarial exposure, poison, fevers and the like? Does loss of vision sometimes or often result from this cause—especially among soldiers?

2. What is the relative *earning* value of an eye, as compared with a leg or an arm? Would loss of eye equal or approximate loss of arm at elbow or leg at knee?

This information is asked for in the nature of a charity—to assist an old blind soldier to get what clearly appears to be his due. Respectfully,

CLARK W. HARRINGTON, P.M.

Ophthalmia being only another term for conjunctivitis, we should know what kind of conjunctival inflammation the questioner refers to, in order to give a definite answer. In a general way we may say a simple conjunctivitis is often found in fevers (especially measles and scarlet fever), but it does not impair the vision; granular conjunctivitis, which often affects the sight more or less, is not caused by such diseases as referred to in the above question.

The earning value of an eye depends on various conditions; it is evidently greater if the remaining eye has poor sight than if the remaining eye has good sight; for in the first case its loss would practically be equal to the loss of both eyes. Prof. Zehander has furnished us with a formula by which the earning capacity of the remaining eye (and consequently the earning value of the lost eye) can be appraised for the manifold conditions of sight. The normal sight of an eye being valued at 100, the earning capacity of the remaining eye is $\frac{2+1\,0\,0+0}{8} = 66\frac{2}{3}$ per cent., hence the loss of one eye amounts to $33\frac{1}{3}$ per cent. of the former earning capacity, provided both eyes had full vision. But suppose the vision of the remaining eye is only four-fifths, its earning capacity would be $\frac{2+8\,0+0}{8} = 53\frac{1}{3}$; hence the lost eye would have an earning value of $46\frac{2}{3}$ per cent., and thus the loss in earning capacity can be estimated under all conditions if in the above formula the degree of vision of the remaining eye is substituted for 100.

SOCIETY NEWS.

The Nicollet County (Minn.) Medical Society held a meeting July 14.

The Central Texas Medical Association held its semi-annual meeting at Waco, Tex., July 10.

The Orleans County (N. Y.) Medical Association at its recent session voted that its members charge clergymen and their families the same for medical services as other persons. A different rule has prevailed.

The Chautauqua Medical Society held its annual meeting July 10 and elected officers for the ensuing year: President, N. G. Richmond; Vice-President, Morris N. Bemus; Secretary and Treasurer, C. A. Ellis.

The Stephenson County (Ill.) Society of Physicians and Surgeons held a meeting July 17 and elected officers for the ensuing year: President, Dr. Buckley; Vice-President, Dr. Thompson; Secretary, Dr. Stoskopf.

The Wayne County (Ind.) Medical Society held its annual meeting at Richmond July 11, and elected officers for the ensuing year: President, J. R. Weish; Vice-President, Dr. Howe; Secretary, G. H. Grant; Treasurer, J. F. Hibberd.

Wyoming County (N. Y.) Medical Society.—The quarterly meeting of the Wyoming County, N.Y., Medical Association was held in Warsaw, July 11. The following officers were elected: President, Dr. M. J. Wilson; Vice-President, Dr. John C. Fisher; Secretary and Treasurer, Dr. A. B. Straight.

Iowa and Central Illinois District Medical Association.—The Iowa and Central Illinois District Medical Association held its regular annual meeting July 19, at Davenport, Iowa. The meeting opened at or about noon, and was attended by a large proportion of the medical men and women of Davenport, and a number of those living and practicing on the Illinois side of the river, with a few visitors from other cities. After the banquet the following program was given:

Address of the President—Dr. G. C. Craig, Rock Island.
Catarrhal Inflammation of the Middle Ear—Dr. C. M. Robertson, Davenport.
Fracture of the Skull with Brain Lesions—Dr. J. R. Hollowbush, Rock Island.

Officers were elected for the ensuing year as follows:

President—Dr. J. P. Crawford.
Vice-President—Dr. C. C. Carter, Rock Island.
Treasurer—Dr. A. W. Cantwell.
Secretary—Dr. G. L. Eyster, Rock Island.
Program Committee—Drs. Allen, of Davenport; Hollowbush, of Rock Island, and Myers, of Moline.

Drs. R. A. Nash, of Tipton and Charles Hunter, of Hampton, Ill., were elected to membership.

PUBLIC HEALTH.

The Memphis Board of Health has sent a communication to the Tennessee State Board of Health, calling for such action as will lead to legislation prohibiting infant and child life insurance within the State, on the ground that the practice leads to criminal negligence of the proper care of children, and is to that extent prejudicial to public health.

Cholera. — Notwithstanding some increase of Asiatic cholera in Europe, which was to be expected as the season advanced, there is nothing in the situation to occa

sion serious alarm and the outbreaks, except in Russia, seem to be kept well in hand. The occurrence of fresh cases or the appearance of the disease in new localities is the signal for renewed sanitary effort and increased precautions—as in Turkey, where the Imperial Government has again established quarantine restrictions on all European arrivals because of fresh cases at Adrianople on the 23d. Previous reports of the prevalence of the disease in Canton and elsewhere in China are now officially denied.

Vaccination in the Courts.—The Supreme Court of Pennsylvania has confirmed the decree of a lower court to the effect that school boards have the right to exclude from the public schools children who have not been vaccinated. In a similar case, pending before the Supreme Court of New York, the attorney for the Anti-Compulsory Vaccination League said that he had "reached the conclusion that vaccination is the most dreadful thing that has ever blackened medical theories." He had consulted many authorities and claimed that the Encyclopedia Britannica (!) sustained his argument. He urged that the Court had a right to review the question whether vaccination was "healthy" or not; but, upon the corporation counsel requesting time to prepare a scientific argument upon the subject, the Court (Mr. Justice Bartlett) replied that it was not necessary. "The vast preponderance of medical opinion throughout the civilized world is in favor of vaccination."

Rapid Vaccination.—Dr. George F. Cott, one of the District Physicians of Buffalo, was delegated to vaccinate the children in eight of the public schools of that city during the recent smallpox "scare." He has furnished the results of his experience to one of the local papers—not alone his experience in vaccinating, but of the methods of teaching and the hygienic conditions, etc., of the schools. Concerning vaccination he says:

"It has been contended that it is impossible to vaccinate 100 in an hour. I have vaccinated 150 in thirty-five minutes with the help of an assistant. I have operated on sixty in twenty minutes without assistance. It will be found by dipping the ivory points into water that the virus is dissolved and easily removed by a little friction, and that, all other arrangements being perfect, three children per minute can thus be easily treated."

This, too, when, as he takes occasion to state:

"The instrument for scarifying is thoroughly sterilized after each operation and fresh ivory points are used, thus making the inoculation of disease from one child to another absolutely impossible."

"Won Wek."—Canton letters to Chinamen in the United States report that the plague—"won wek"—is subsiding; that the mortality has been frightful; that neither in Canton nor Hong Kong were there "ye youen" or hospitals enough to contain one-tenth of the cases; and that rigid "ging" or quarantine has been maintained. Well-informed Chinese who have seen previous epidemics of "won wek" do not think the disease will reach this country whether precautions are taken with ships' cargoes or not. *Per contra*, Dr. Stuart Eldridge, Health Officer of Yokohama and member of the Imperial Board of Health of Tokio, advises that "the most stringent measures may need to be taken to protect the United States, particularly as regards certain classes of goods from China likely to convey infection—rags, old cotton, etc., and also such manufactured articles as are made in the native workshops, with perhaps a case of plague dying in the same room; such things as straw matting, embroideries, and every sort of textile fabric." Dr. Eldridge adds that so long as the disease is kept out of Japan, so long will that country be the best bulwark for the United States against the importation of the disease. A letter from a young Englishwoman in the British government hospital at Hong Kong to friends in Harrowgate, Tenn., gives a graphic picture of her experience as a nurse on the smallpox ship which had been turned into a temporary plague hospital. She says: "My first night on the smallpox ship was a ghastly one indeed. I had thirteen deaths in the twelve hours that I was on duty, and most of the other patients were delirious. That was my worst experience. Since then about eight or ten deaths in twelve hours has been the average." Reports of the extension of the plague into Russia are not confirmed.

An Anti-Vaccinist Testifies.—One of the "big guns," from the use of whose ammunition the anti-vaccinists have hitherto derived much satisfaction—in the matter of noise, if not of execution—is Prof. Crookshank of King's College and Hospital, London, Eng., in which institution he has the chair of Comparative Pathology and Bacteriology. He has been quoted in season and out of season by the "antis," who "Kick against the Insearttion into the Pure Blood and Vitle fluid of our Inosent offspring of that Diseas of the animals cowpox," and his acknowledged reputation as a bacteriologist is cited as proof that what he says must be so. But, like other heavy artillery, the Professor's recoil is sometimes more dangerous to the friends in the rear than is his shot to the enemy in front. In his recent evidence before the English Vaccination Commission he testified that, in his judgment, nurses in smallpox hospitals escape the disease not because they are vaccinated but because of improved hospital conditions and cited the analogy of typhus fever in support of his position. He wholly ignored the undisputed fact that it is only the revaccinated nurse who is absolutely secure, while the unvaccinated or the only once vaccinated contract the disease in greater proportion than those of like classes not living under the "improved hospital conditions." But the Professor's scattering at the breech was most disastrous when asked how he would protect the nurses if he himself were in charge of a smallpox hospital. Pressed for a reply he said he should "inoculate them with variola itself;" and, to a similarly direct question whether he believed that vaccination as generally practiced does protect many persons, he finally answered "Yes; for a time." If the "antis" can get any comfort out of further citation of Prof. Crookshank they should be welcome to it.

Restriction and Prevention of Rheumatism.—At the July meeting of the Michigan State Board of Health, the President, Mr. Frank Wells, of Lansing, said that he had long noticed that the weekly health bulletins published by the Board show that of the twenty-eight diseases reported upon by the regular observers around the State, rheumatism is usually at the head of the list as causing the most sickness in Michigan. Mr. Wells raised the question whether there was anything that the Board could do in the way of publication of information which might tend to lessen the amount of sickness from this disease. Dr. Vaughan said he knew of nothing tangible yet relating to the restriction and prevention of rheumatism, which could be imparted to non-professional people. He thought no work should be undertaken now which will interfere with the effort being put forth by the Board for the restriction and prevention of tuberculosis—the most important of all diseases. Dr. Baker said that the Board has already done much for the diffusion of knowledge respecting the causation of rheumatism, which knowledge is essential to proper action for its prevention. "But we must wait for an advance in two lines of investigation not much entered upon by this Board—that of bacteriology and that of physiologic chemistry. Several times in the past it has seemed that facts were about to crystallize into a tangible theory; but just as appearances were most favorable, ideas of medical investigators regarding the causation of rheumatism have changed. Much has been learned from the sickness statistics collected and published

by the Board. Curves have been made showing that rheumatism has a direct relation to meteorologic conditions. The facts in the Secretary's office show that tonsillitis follows the cold atmosphere and that rheumatism follows tonsillitis. It is quite probable that if rheumatism is a germ disease, tonsillitis prepares a soil favorable to the reproduction of the germ and a way for its entrance into the body. We are waiting for the bacteriologists to find the specific organism. So far as I know only the pus-forming germs have been found in connection with rheumatism, and it is quite possible that they are the cause of the disease; if so, its increase, following the sore throats caused by raw cold weather, is explained by the facts on record in the State Board of Health office. Diagrams exhibiting the rise and fall of rheumatism by seasons of the year prove that its course is similar to that of smallpox, consumption and other diseases known to be caused by germs, and known to enter the body by way of the air passages." Secretary Baker suggested that a committee might be appointed to investigate the subject and report to the Board at some subsequent meeting. Dr. Vaughan said that at present, all is speculation as to the causation of rheumatism, but he thought it quite probable that Dr. Baker's idea of the causation of rheumatism may be nearly the proper explanation. He would, however, explain rheumatism as being the result of an over-exertion or unusual destruction of the cells of the body in trying to protect the body from an attack of a germ disease; in other words, it is an over-drugging on the part of nature in order to throw off an attack of some germ disease. The uric acid, which is not excreted rapidly enough and which accumulates in the body and causes the rheumatic pains, is formed by the action and destruction of cells. On motion of Prof. Fall it was voted that Dr. Baker prepare and read at a future sanitary convention a preliminary paper on the causation, restriction and prevention of rheumatism.

MISCELLANY.

The Two Dromios.—A monthly medical journal published in Pittsburg, and a weekly medical journal published by a book publishing house in Philadelphia, lash themselves into a high temperature over the report of the Trustees of the AMERICAN MEDICAL ASSOCIATION made at the last annual meeting. It is to be presumed that with the growth of the country and general increase in the volume of business, that the two Dromios will eventually have to devote more time to the conduct of their own publications. The proof reader of the Pittsburg sheet has apparently been on a vacation for some weeks.

The Columbus Medical Journal.—The *Columbus Medical Journal* is now a bi-weekly instead of a monthly, and Dr. R. Harvey Reed is the editor-in-chief. That he will make the publication a power in the Buckeye State, every one who knows Dr. Reed will admit.

The Regular Semi-Annual Meeting of the Washington State Board of Medical Examiners was held at Spokane, Wash., July 2-5. There were seven applicants before the Board for license to practice within the State and but four were successful. The Board decided to continue the high percentage of requirements adopted at the previous meeting.

Delegates Abroad.—Drs. Theo. B. Schneideman, Philadelphia; Giles C. Savage, Nashville, Tenn; Julian J. Chisolm, Baltimore, Md; S. D. Risley, and G. E. de Schweinitz, Philadelphia, have received credentials as foreign delegates from the Permanent Secretary. These gentlemen go abroad particularly to attend the Ophthalmological Congress.

Octogenarian Ovariotomy.—J. Paul Bush, Surgeon to the British (Eng.) Royal Infirmary, is thus far entitled to claim the oldest ovariotomy patient. She was a widow, aged 84; operated on Sept. 12, 1893, and a large thin-walled multilocular ovarian cyst removed; sent home October 16, and reported "alive and well and able to get about some months after." Her exact age was carefully inquired into at the time of admission and was confirmed by papers and documents.

A Medico-Historic Exhibition.—At the "Naturforscher" to be held at Vienna next September there will be an exhibition of articles illustrating the historical development of medicine. It will embrace diagnostic, therapeutic, surgical and obstetrical instruments and appliances of former ages; plans and pictures of hospitals; portraits of former physicians and surgeons; medals struck as memorials of plagues, and other objects useful as historical illustrations of past stages of the healing art.

Pasteurized Milk.—Pediatric authorities advise that all milk fed to children should be Pasteurized in warm weather—that is raised to a temperature of 168 degrees F., to destroy ferments and prevent souring. This temperature kills tubercle bacilli, typhoid and other germs that may be present in the fluid. It is true that it also renders the casein of the milk less easily digestible, destroys milk-sugar, and causes proteid matter to adhere to fat globules, thus retarding their digestion; but these results are of little importance clinically, except in the care of weak children, while the benefits are many and obvious.

They Don't Go.—Steerage passage to Europe may now be had for $8.00 and thousand of aliens, disgusted with Coxeyism, Debsism, Federal bayonets and other exanthemata of the body politic and social, are taking advantage of the cheap rates to return to their native lands. One scans in vain, however, the returning passenger lists for the names of the hordes of "feldschers," barber-surgeons, valets and others with purchased medical qualifications who have flocked hither in recent years to help make up the aggregate of over 118,000 persons who are getting some kind of a living out of the practice of medicine among 65,000,000 of the healthiest people under the sun. There is a ripe harvest here for the steamship agent in this superfluous factor of the medical profession.

New Drugs and Names.—The *Medical Record* thinks that our English brethren must be especially keen on new drugs, and in particular on new names of a proprietary character. The following list of "new drugs" is taken from a single issue of the *London Lancet:* "Nepenthe, malakine, virol, pepsalia, pumiline, cactina, celerina, antinervine, cerebrine, papain, anestile, opiatine, lintus tussi, kreochyle, vapocresoline, chiralta liq., cocoatina, izal, bynol, bovril, liquor sedans." These are not all, but they are sufficient to show the pharmaceutist's fancy, and the appreciation of it by the British mind. To the student, and even the recent graduate of medicine, all these things must appear quite unintelligible, and he must feel that having learned the materia medica of his text-books, he must begin again and learn that of the manufacturer.

A New Parasite in America.—The announcement of the discovery in this country of the *Distoma Ringeri*, by Prof. Ward, of the University of Nebraska, is attracting more attention abroad than at home. This fluke has hitherto been found only in the far East—China, Japan, Corea and Formosa—where it infests the lungs of man, giving rise to periodical hemoptysis (Foster's Med. Dict.) and chronic cough with rusty mucoid expectoration. Already we are told that if this parasite "is now endemic in America we may expect to hear more about it soon, not only as a parasite of the lower animals but as a cause of endemic hemoptysis in man." Here is a brilliant opportunity for the men who are "in love with a microscope" and prone to "flirt with pathologic specimens." Endemic hemoptysis may soon become as fashionable as appendicitis.

Aerial Diffusion of Smallpox.—In a recent London report appears a contribution to the controversy upon the aerial convection of smallpox, in which it is asserted that "the

diffusion of smallpox through the air does not extend to a distance of 1,000 feet." *Public Health*, in commenting upon this assertion, points out that the patients who had been exposed to the influence of a smallpox hospital about 1,000 feet away, were only those "who showed evidence of previous vaccination," and their failure to contract the disease from such exposure should be attributed to this vaccinal protection rather than to distance. It also appears that the "smallpox hospital" in question was so in name only, since it was used solely "for the reception of convalescent smallpox and fever patients." One of the conclusions arrived at in 1882 was that the diffusion of smallpox had not shown itself "while the use of the hospital has been for convalescents only," and the absence of danger in the accumulation of convalescent persons was then noted. There are, in fact, many proofs in support of the contention that smallpox is contagious only in the acute stage of the disease and the positive evidence of Dr. Priestley, cited in the JOURNAL editorial, "Hospital Spread of Smallpox,"[1] far outweighs this negative testimony.

Health and Morals of Congress.—Section 40 of the Revised Statutes of the United States directs that the Sergeant-at-arms of the House of Representatives shall deduct the proper amounts from the salaries of members who are absent for other causes than sickness of themselves or members of their families. After remaining for years a dead letter it was revived this session as a means of securing a quorum, but its enforcement proved so farcical that Representative Powers, of Vermont, has introduced a bill for its repeal. In support of his bill Judge Powers urges that "it is apparent that the excuse of sickness is one easily made, and it is suspected that it is sometimes assigned as a reason for absence without any diagnosis of ailment by medical experts. In other words, the enforcement of this section practically makes every member a pathologist on the subject of disease, which is not a qualification for Congress mentioned in the Constitution, and so for this reason the law is plainly unconstitutional. It is believed that each House of Congress can, by an appropriate rule, better enforce the attendance of members than by a statute operative as a penal statute and evaded by every subterfuge. Obviously the manly way to get rid of objectionable legislation is to repeal it, and in this case such repeal will manifestly improve both the health and morals of the House."

Representative Powers is the wise and witty Judge who, as the readers of the JOURNAL may recall, in refusing a writ of mandamus against the Vermont State Board of Medical Censors to compel it to recognize the Vermont Medical College—a "diploma mill," organized under a general incorporation act—said that: "To suppose that the Legislature meant by this act that any three persons could organize a college and confer medical degrees would be to make the title M.D. of as little account as Richelieu threatened to make a dukedom in France. He would create so many dukes that, while it would be no disgrace not to be a duke, it would certainly be no honor to be a duke."

If He Should Undertake a Cyclopedia!—A "catechism" is popularly understood to mean a compendium or summary of rudiments or principles, concisely stated in the form of questions and answers; Webster defines it as: "An elementary book containing a summary of principles in any science or art," etc. Patrick Hehir, M.D., F.R.S.E., F.R.C.S.E., D.P.H. (Camb.), is the author of "A Catechism of Hygiene and Sanitary Science," the first volume of which has just been issued in Calcutta. This volume deals with the subject of water exclusively, and consists of 610 octavo pages of print smaller than that in which this item is set. There will be fifteen such volumes in this "Catechism!" Among the *facetiæ* of the bookmen there is the story of an author—Smalgruenius according to some, Thomas Aquinas according to others—who wrote a work, *De Omnibus Rebus*, followed by another entitled *De Quibusdam Aliis*. More recently and better authenticated is that of the German philologist who at the end of a long life spent in the study of one solitary Greek root, died lamenting that he had not had time to exhaust its derivatives. To these must now be added this gentleman of the epicene cognomen who undertakes to write a "catechism" of over nine thousand octavo pages. Let us pray the gods that our latest dictionary with its 300,000 words be kept from him until he is through.

"Faith Cure."—The current number of *The Arena* contains an article by Dr. James R. Cocke on the so-called "faith cure," mind cure or mental therapeutics. The writer concludes that it is of value: "1, as a curative agent in cases of functional neurosis; 2, in correcting vicious habits formed by the mind of the individual; 3, in removing some of the acute symptoms of organic disease; 4, I consider that its greatest value is in the department of preventive medicine. I believe that more diseases could be prevented by studying the minds and souls of youth and by correcting abnormal tendencies in them than can be cured in later life by any amount of treatment, no matter of what kind." If this be true then "faith cure" has a wide field open to it, since, according to the *Spectator*: "The rapid increase of suicide must be due not merely to the dwindling religious faith of the day, but to that horror of trouble and grief which indicates a dwindling power of endurance and an almost extinct sense of hope. No doubt this dwindling power of endurance, this extinguishing of hope, undermines also the sources of faith. Faith without hope is hardly possible, and fortitude without hope is still less conceivable. We have little doubt there are a much larger number of persons who are born into the world without any elasticity of nerve nowadays than there were in less exciting times." In the judgment of the JOURNAL the trouble with this class of persons is that they failed to select their ancestors properly. If "faith cure" will correct the defects of heredity by all means apply it, for "faith without works is dead."

Woman in Medicine.—A French compiler, M. Marcel Baudouin, furnishes a *résumé* of the legal status of women in the medical profession in various countries, in which, singularly enough, he omits all but the merest mention of the gentler sex in France. According to M. Baudouin women are rigidly excluded from the advantages of a university education in Germany, and consequently may not become candidates in any medical examination; "it naturally follows that no medical woman can be the possessor of a certificate carrying with it the slightest value in Germany," since a state license upon examination is necessary to practice in that country. In Austro-Hungary the situation is even worse; there the admission of women to higher grade instruction is formally forbidden by law. Spain is quite as bad; in fact the difficulties are said to be even greater in the Iberian peninsula than in Germany and Austria. In England, Ireland and Scotland the universities—through which lies the registration necessary to the right to practice—are now all thrown open to women, Scotland having been the last to yield to the new order of ideas; in Ireland, however, while a woman is afforded every facility for obtaining a medical qualification she may not fill any public office under the State. Similarly in Sweden, Norway and Denmark, the medical career is open to all without distinction of sex—save in the matter of State appointments. In Belgium, Holland and Roumania the broadest views prevail

[1] JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 16, 1894.

regarding the medical rights of women; they may do and be, as physicians, all that men can and are, *cæteris paribus*—which they are not. The right of women to practice is fully recognized in Italy, and a woman occupies the Chair of Histology in the Medical Faculty of Bologna.

In 1893 there were 308 women attending medical lectures in Zurich, Geneva, Berne, Basle and Lausanne, but there are only ten women practicing in Switzerland; after graduating the students return to their own countries to practice, principally to Russia. In this latter country, Russia, there were 546 women practitioners in 1893, and women are there allowed by law to become assistant surgeons in all railway administrations; in 1890 a special medical school for women, after the American model, was established in Moscow. Universities in many of the English colonies have been open to women since 1875, and in France woman first obtained foothold in a university in 1863, but five years later there were only four female students in l'Ecole de Medecine of Paris; the more beautiful women of a most beautiful country do not seem to take kindly to the practice of physic, notwithstanding the illustrious examples of Mesdames La Chappelle, Bourgeois and Boivin, concerning whom it has been said that "if their mantle could be made to fall on the shoulders of their sisters of the present generation female delicacy would be saved many a rude shock and the cause of science would in no sense suffer."—(Leishman, *System of Midwifery.*) M. Baudouin concludes with the following tribute to this country:

"Only a moment's consideration of the following statistics is necessary to convince an inquirer that he must proceed to the United States of North America if he wants to study effectually the question of medical women. According to a statistical report drawn up by M. Louis Frank, of Brussels, there were in 1893 on the other side of the Atlantic fully two thousand women practicing medicine in one or other of its forms and inclusive of 130 'homeopaths.' The majority were general practitioners, but there were also 70 hospital physicians or surgeons; 95 professors in the schools; 610 specialists for the diseases of women; 70 alienists; 65 orthopedists; 40 oculists and aurists, and, finally, 30 electrotherapeutists. In Canada there is but one medical school exclusively for women, but in 1893 there were ten such in the United States. It must not be forgotten also that all medical schools in America are freely open to women, and that mention of this is by no means omitted from their published announcements."

This latter statement is not entirely accurate, since many schools refer women applicants to their special colleges, preferring to avoid a certain embarrassment that sometimes arises in medical co-education. M. Baudouin might have also included mention of the fact that medical women in the United States are eligible to governmental appointment, and at least one woman, Dr. Sarah Hackett Stevenson, is a member of a State Board of Health which examines and licenses applicants for the right to practice.

Hospital Notes.

BURBANK HOSPITAL.—The new Burbank Hospital of Worcester, Mass., was opened July 16.

THE TESTAMENT of Mary McMullen, who died recently at St. Agnes' Hospital, Philadelphia, gives property to that institution valued at about $65,000.

A HEBREW HOSPITAL AT PITTSBURG.—A fund of $20,000 is held in trust by the Hebrew Benevolent Association of Pittsburg for the building of a hospital.

THE HERMAN HOSPITAL of Elgin, Ill., was tendered a benefit under the auspices of the St. Mary's and St. Joseph's Catholic churches July 13. The concert was successful, and a handsome sum was presented to the hospital.

ELECTION OF MISS HOPKINS.—The Board of Directors of the Western State Hospital July 18 elected Miss Charlsey Hopkins, of the Warm Springs, an assistant physician at that institution. Miss Hopkins takes the place lately made vacant by the resignation of Miss Haines.

THE BOARD OF DIRECTORS of the Grace Hospital at Detroit, Mich., held a meeting July 13 and elected officers for the ensuing year. The report showed that the receipts for the first six months of this year were greater than those for the corresponding time last year. The charity wards have held their maximum capacity during the entire year.

BELLEVUE HOSPITAL.—Plans are being made for the reconstruction of certain portions of Bellevue Hospital, New York, that part which is used as reception office, examination and admission rooms, besides store room of the hospital. The accommodations have been inadequate and reconstruction will be of great benefit to those interested.

ROCHESTER (N. Y.) HOSPITAL.—The board of managers of the Rochester State Hospital held its quarterly meeting July 17, at which meeting the plans and specifications for a new building and repairs made necessary by the recent fire were forwarded to Albany for approval. The appropriation for the new building is $65,000.

A PROTESTANT HOSPITAL.—Articles have been filed for the establishment of a new hospital in the city of Seattle, Wash. The objects are to found and maintain a hospital under the management of Protestants, for the medical and surgical treatment of sick and infirm persons, with the object of furnishing such treatment, as far as possible, gratuitously to the poor.

Medical College Notes.

A NEW medical college has been organized in Kansas City under the name of the College of Physicians and Surgeons of Kansas City, Kan. The capital stock will be $10,000. The directors are Drs. J. W. May, S. I. Harrison, R. Roberts, J. C. Martin, W. C. Boteler, W. F. Wilkins, E. J. Dennis, A L. Michaels and E. M. Heatherington.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 14, 1894, to July 20, 1894.

Capt. RICHARD W. JOHNSON, Asst. Surgeon U. S. A., is granted leave of absence for two months.

First Lieut. FRANK T. MERIWETHER, Asst. Surgeon, leave of absence granted on surgeon's certificate of disability, is extended two months on surgeon's certificate of disability.

LETTERS RECEIVED.

(**A**) Atkinson, W. B., Philadelphia, Pa., 2; Arsdale, W. J., Pittsburg Pa.; Allenmer, C. L., Beaver Meadow, Pa.; Ayers, D., Syracuse, N. Y.

(**B**) Bitinger, Wm., Grady, Ark.; Briggs, Wallace A., Sacramento, Cal.; Bates & Morse Adv. Agency, New York City; Butler, John T., Williamsport, Pa.; Branch, B. L., Rossville, Tenn.; Baum, F., Kansas City, Kan.

(**C**) Christian, E. A., Pontiac, Mich.; Curtin, W. A., Syracuse, N. Y.; Cleaves, M. A., New York City; Chesman, Nelson & Co., St. Louis, Mo.; Cranford, C. H., Albany, N. Y.

(**D**) De Courcy, J. O., St. Libory, Ill.; De Long, W. D., Reading, Pa.; Dongan, W. McKay, White Rock, Nev.; Dios Chemical Co., St. Louis, Mo.

(**E**) Ellis, P. V., Marshalltown, Iowa; Evans, Geo. W., Washington, D. C.

(**F**) Franzoni, C. W., Washington, D. C.; Formaneck, F., Chicago, Ill.

(**G**) Garrison, Harriet, Dixon, Ill.; Golden Gate Adv. Co., San Francisco, Cal.

(**H**) Hale, G. V., Wheatland, Texas; Hummel, A. L., Philadelphia, Pa., (2); Haughton, R. E., Midland, Texas.

(**I**) Ingraham, C. W., Binghamton, N. Y.

(**J**) Johnson, R. L., Rolla, Mo.

(**K**) Knight, C. H., New York City; Klttredge, A. O., New York City.

(**L**) Lentz, Charles & Sons, Philadelphia, Pa.; Lutz, F. J., St. Louis, Mo.

(**M**) Mooney, E. L., Syracuse, N. Y.; Maltine, The Mfg. Co., New York City; Montgomery, E. E., Philadelphia, Pa.; Mahoney, G. W., Chicago, Ill.; Millard, Perry H., St. Paul, Minn.; Martin, J. A., Palestine, Ill.; Mercer Chemical Co., Omaha, Neb.; Martin, W. A., San Francisco, Cal.; Meade, S. J. D., Cincinnati, Ohio.

(**P**) Post, J. R., Rome, N. Y.; Piper, F., Boston, Mass.; Parke, Davis & Co., Detroit, Mich., (2); Plummer, R. H., San Francisco, Cal.; Powell, David, Marysville, Cal.; Price, M. F., Los Angeles, Cal.

(**R**) Reed & Carnrick, New York City; Rosenstirn, Julius, San Francisco, Cal.; Ricketts, B. M., Cincinnati, Ohio; Rockey, A. E., Portland, Ore.; Reed, R. Harvey, Columbus, Ohio.

(**S**) Scott, W. A., Swanton, Ohio; Scott, X. C., Cleveland, Ohio; Southard, W. F., San Francisco, Cal.; Shipley, C. P., Mason City, Iowa, (2); Spencer, John C., San Francisco, Cal.; Smith, Q. C., Austin, Texas.

(**T**) Todd, F. W., Redona Beach, Cal.; Thompson, J. E., Galveston, Texas; Thompson, C., New York City; The Drevet Mfg. Co., New York City; Thayer, O. V., San Francisco, Cal.; Thorpe, Edw. E., Boston, Mass.; Thrasher, Marion, San Francisco, Cal.

(**W**) Walker, H. O., Detroit, Mich.; Walbridge, L. P., Decatur, Ill.; Wright, J. P., St. Louis, Mo.